ECONOMIC DEVELOPMENT AND TOURISM

GOVERNMENT OF THE NORTHWEST TERRITORIES

IMPORT SUBSTITUTION OPPORTUNITIES

MAIN REPORT

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TABLE 1

TERRITORIAL GROSS DOMESTIC PRODUCT
NORTHWEST TERRITORIES
1977 - 1984
(millions)

Year	Gross Domestic Product At Market Prices
1977	$ 466
1978	509
1979	557
1980	655
1981	600
1982	846
1983	964
1984	1,122 [1]

[1] Preliminary figures prepared by G.N.W.T. Bureau of Statistics

Source: G.N.W.T. Bureau of Statistics (Preliminary Figures)

I. SCOPE OF STUDY

A. BACKGROUND

The economy of the Northwest Territories (N.W.T.) is in the early stages of development. The N.W.T. is lightly populated, with over one-half of the residents situated in isolated communities of fewer than 1,000 residents. At present, few goods and services are produced locally. The level of economic integration is limited. Very few industries share a common infrastructure and there are only a small number of value-added processing companies. The majority of goods and services consumed in the N.W.T. are imported from the south, financed primarily through the export of non-renewable resources and through government transfer payments.

As shown in Table I, the Territorial Gross Domestic Product (GDP) of the Northwest Territories increased substantially from $466 million in 1977 to an estimated $1.1 billion in 1985. Although the economy of the Northwest Territories has grown at a faster rate than has the overall Canadian economy, much of this growth was fueled by increases in government expenditures and extraordinary projects in the non-renewable resource sector including the Petroleum Incentive Program (PIP), the construction of the Norman Wells Pipeline and the Polaris Mine at Little Cornwallis Island. Due to declining in oil and mineral prices, however, the N.W.T. must look to other sources as a means to foster continued economic growth.

In order to counteract the dramatic swings in the economy caused by price fluctuations in non-renewable resource markets, the Government of the Northwest Territories has embarked upon an aggressive program to stimulate economic development. One of the options for economic growth that has been identified is the fostering of local sources of goods and services to replace those currently imported into the N.W.T.

The potential benefits of import substitution include:

1. Improving the balance of payments between the Northwest Territories and its southern trading partners.

2. Diversifying and strengthening the existing small business sector.

3. Providing additional employment opportunities.

4. Increasing tax revenues for the Government of the Northwest Territories.

B. PURPOSE OF THE STUDY

In order to encourage import replacement, the Government of the Northwest Territories has commissioned a study to assess import substitution opportunities and to determine the measures required to alleviate constraints and barriers faced by northern businesses.

The specific objectives of the study are summarized below:

1. To measure the existing production, consumption and importation of goods and services in the Northwest Territories.

2. To identify specific goods and services that could feasibly be produced and marketed in the N.W.T. under current market and production conditions.

3. To identify the major constraints that serve to limit the feasibility of import substitution opportunities.

4. To outline the most appropriate role for the Government of the Northwest Territories to play in encouraging the development of import substitution opportunities and in alleviating existing constraints.

C. METHOD OF STUDY

In order to assess the potential benefits of import substitution, we first conducted an extensive review of the published articles and texts on the theory of import substitution and its application to northern and underdeveloped economies. In order to determine the production, consumption and importation of goods and services in the N.W.T., we conducted an extensive review of the available statistics compiled by the Government of the Northwest Territories, Statistics Canada and the Federal Department of Indian Affairs and Northern Development.

In order to determine the opportunities for import substitution, we conducted an extensive review of the available studies on business opportunities in the N.W.T. A comprehensive list of the studies reviewed is provided in Appendix 1.

An extensive interview program was also conducted to obtain information on potential import substitution opportunities. Our interview program consisted of a total of 93 interviews with the major companies offering goods and services in the N.W.T. A breakdown of the number and type of companies interviewed is provided below, while a more detailed list is provided in Appendix 2:

Type	Number of Companies Interviewed
Professional services	13
General services	17
Wholesale and retail	16
Trade	17
Oil, Gas and Mining	5
Manufacturing	7
Agriculture	12
Miscellaneous	6
Total	93

In addition, we conducted a total of 36 interviews with purchasing agents and other representatives of Federal, Territorial, and municipal governments. From each interview, we obtained information on the potential business opportunities, existing constraints and the value of goods and services purchased within and outside the N.W.T. by each organization.

Based on the interview program and the available statistics, we developed a list of import substitution opportunities. We selected the business opportunities that appeared to have the greatest import substitution potential. For each opportunity selected, we then conducted a pre-feasibility assessment to obtain a preliminary indication of the viability of the proposed business. To do so, we conducted an additional 60 telephone interviews with potential customers of the proposed businesses. We also contacted representatives of similar businesses in other parts of Canada to obtain information on their capital and operating costs and their perception of the potential to establish a similar business in the N.W.T.

D. STRUCTURE OF REPORT

The next chapter of the report provides a description of the goods and services currently being imported into the N.W.T. Chapter III describes the criteria employed to identify import substitution opportunities and the existing constraints to import substitution. Chapters IV to VIII contain detailed analyses of import substitution opportunities and constraints in the food, manufacturing, energy, professional service, and trade and consumer service sectors of the N.W.T. economy. The last chapter contains general recommendations on the role that should be played by the Government of the Northwest Territories in encouraging the development of import substitution opportunities and in alleviating the existing constraints to further development.

II. OVERVIEW OF IMPORT SUBSTITUTION OPPORTUNITIES

This chapter provides a brief explanation of the role of import substitution in the economic development of the N.W.T. and the criteria for identifying import substitution opportunities.

A. INTRODUCTION

According to recent economic theories, the two ways in which the N.W.T. can expand are through an increase in exports or through the further development of the support sector by the replacement of imports. The second option is the focus of this report.

Import substitution results in an increase in the export multiplier, which is the average number of times each dollar brought into the N.W.T. from the sale of exports or transfer payments circulates in the N.W.T. before it leaks out through the purchase of imports.

The multiplier in the N.W.T. is much lower than in more developed areas because most of the goods and services consumed are imported from the south. A dollar that enters the N.W.T. economy from the sale of an export product or a government transfer payment often immediately passes back out of the region in exchange for goods and services that are not available locally.

According to a 1980 N.W.T. study, the income multiplier associated with government expenditures was 2.10, while the multiplier associated with mining expenditures was only .53. Each dollar received and spent by the government generated $2.10 in further territorial economic activity, while each dollar received and spent by the mining industry generated only $0.53 in further territorial economic activity. The multiplier for the mining industry is lower because it is more capital intensive with substantial investments in specialty goods which cannot feasibly be produced in the north. In addition, many of the employees are imported from outside the region and express a distinct preference for foods and other goods from the south.

Import substitution is the means through which the support sector is strengthened and diversified, and through which the multiplier is increased. Import substitution, by definition, involves the replacement of goods and services presently sourced from outside the region with goods and services produced locally.

The process of import substitution often contributes to greater economic growth than does an increase in exports. As an illustration, during the 1970's it was expansion of the support sector through import substitution that fueled economic growth in Alaska. Total Alaskan employment and income increased by 78% between 1970 and 1980 at a time when employment and income in the export-based industries were actually declining.

Similarly, comparative studies in the United States and elsewhere have shown that economic growth is not significantly correlated with the growth of large-scale industries. Rather, economic growth is fueled primarily by growth in the service sector and in diversified small manufacturers.

B. CRITERIA FOR IDENTIFYING IMPORT SUBSTITUTION OPPORTUNITIES

The extent to which a given good or service represents an import substitution opportunity is a function of four criteria: demand in the local market; local costs of production; cost of importing the product; and the competitive situation. A description of each of these criteria is provided below:

1. Demand in the Local Market

Demand in the local market for any good or service reflects the population levels, disposable incomes, consumer and industrial purchase patterns, buying criteria, and familiarity with the product.

2. Local Costs of Production

The cost of sourcing the good or service from a local supplier must be less than the cost of importing. The price charged by the local supplier must be

greater than the cost of production in order for the business to survive over the long run. The costs of production are based on the volume produced (economies of scale), the technology employed and input prices.

In the Northwest Territories, businesses engaged in import substitution tend to be small in size, often owner-operated. These businesses must compensate for the small size of the market served by producing a wider range of products or services than would be the norm in larger centres. The focus must be on goods and services associated with low economies of scale (for example, custom-produced rather than mass-produced articles), or those which have prohibitive transportation costs.

3. Cost of Importing the Product

In general, the greater the proportion that transportation costs are of the total landed cost, the greater is the opportunity for import substitution.

4. The Competitive Situation

Purchase decisions are not made strictly on the basis of price. Other variables that may be important determinants in purchase decisions include product or service quality, convenience, availability of post-purchase servicing, and personal relationships. A local supplier has an advantage in industries which require considerable direct contact with the customer. Conversely, the limited size of the local market may preclude functional specialization and have a negative impact on product range and service quality.

C. RELATIONSHIP TO SIZE OF COMMUNITY

Import substitution opportunities vary according to the size of community. The communities of the Northwest Territories can be loosely categorized into three groups: the larger, more diversified communities such as Yellowknife; the single-industry non-renewable resource-based communities such as Norman Wells or Pine Point; and the subsistence-based Native communities such as Rankin Inlet or Spence Bay. The nature of import substitution opportunities available in each of these types of communities is outlined below:

1. Larger Diversified Communities

Yellowknife is the largest and most economically diversified economy in the N.W.T. In addition to a large government sector, the economy of Yellowknife includes mining, transportation and communications, a service sector, and some light manufacturing. Another community that falls into this category is Hay River. Although the Hay River economy is largely based on transportation, a declining fishery and the public sector, the opportunities for diversification appear strong.

According to a recent study, the economic development of a region is dependent upon the growth of its major city or cities. Therefore, if the economy of the major communities in the N.W.T. stagnate, so do the smaller communities in the N.W.T. The proper focus for analyzing economic development is, therefore, at the community rather than at the N.W.T. wide level.

The findings of recent studies on import substitution have the following implications for import replacement and economic planning in the Northwest Territories:

1. Economic development strategy should focus on the community level.

   Highest priority, therefore, should be the development of one or more large, diversified communities with the necessary domestic market, labour, capital, and technological inputs required to compete with southern suppliers.

   The development of one dominant community at the expense of others is the rule rather than the exception in the countries of Northern Europe as evidenced by Norway (Oslo), Sweden (Stockholm), Finland (Helsinki), and more recently by the development of Murmansk in the northern U.S.S.R.

2. Economic strategy should favour centralizing rather than decentralizing the regional economy.

   This would involve setting policy that encourages the establishment of new enterprises in the economically strong areas rather than encouraging development in areas of high unemployment or low per capita income. This may also dictate centralizing many government functions. Although government expenditures does not necessarily lead to an increase in production skills, technological improvisation, or internally generated capital, it does increase the size of the domestic market which is necessary for the establishment of many businesses. If government is highly decentralized, then the domestic market is highly decentralized making it uneconomical for many businesses to operate.

3. The further development of the transportation infrastructure in the N.W.T. must be carefully weighed against the impact on import replacement.

   Opening or expanding a major trade route with a developed southern city may seriously prohibit the opportunity to produce goods and services locally because imported goods can be brought in cheaper due to the newly opened trade routes.

4. The large developed communities in the N.W.T. may draw people from smaller communities in the area.

   This is beneficial and should be encouraged from an economic standpoint as long as people will be absorbed into the labour force of the larger community, further diversifying the labour pool and increasing production.

2. Single-Industry Communities

Single-industry communities such as Norman Wells are dependent upon the economic viability of the dominant industry, which in turn is dependent upon markets external to and beyond the control of the community. Changes in consumer or industrial purchase patterns, government regulations, world supply, or availability of substitute products can quickly result in the shut-down or scale-down of the industry.

There are four stages of development for single-industry towns in the N.W.T.:

a. Construction

The construction stage involves the setting up of resource extraction drilling operations such as facilities or mines. Import substitution opportunities at this level are limited to utilizing regional construction labour and local architects and contractors.

b. Recruitment of Citizens

Citizens are recruited to the area to work in the resource sector or, as the economy develops, in the support sector. In the recruitment stage, the population is typically young and homogeneous. Most recruits are sourced from outside the region. The recruits tend to initially view the north as a hostile environment, minimizing contact with the Native culture, with Native foods and with the surrounding landscape.

Import substitution opportunities are limited by unfamiliarity with the environment, the small local market, and an underdeveloped infrastructure. However, as the community becomes more established, opportunities for import replacement develop in the service sector, small-scale production or trade in renewable resources, and light manufacturing.

c. Transition

The transition stage involves the process of economic diversification and broadening the economic base. Import substitution opportunities are significant at this level. No northern communities in the N.W.T., however, have completed this stage.

d. Maturity

A measure of the maturity of a former single-industry town is the ability of the community to thrive and prosper at times when the initial industry is experiencing shut-down or scale-downs.

In summary, import substitution opportunities are limited in the northern single-industry communities in the N.W.T. to the areas of labour, the service sector and renewable resource production. The majority of the capital, labour, goods, services, and technology employed is imported from outside the region. When production of the staple is no longer viable, the capital and labour is transported to a different region. The likelihood of a single-industry community in the N.W.T. making the transition to a mature city is very low.

3. Native Communities

The economies of most Native communities in the N.W.T. are based on government transfer payments and the production of subsistence goods for food, clothing and shelter. In some areas, this subsistence mode of production is complemented by the production of goods such as arts and crafts for exchange, or by tourism activities which are based on the consumptive and non-consumptive use of renewable resources.

The opportunities for import substitution in the Native communities are limited. The size of the local market is very small both in terms of

population and purchasing power. The level of education, range of job skills, and past work experience amongst individuals in the labour force is limited. Furthermore, wage employment related to import replacement production is viewed by most residents as being secondary to the subsistence mode of production.

In summary, import substitution opportunities are much more significant in larger, more diversified economies than in either natural resource-based communities or Native communities. From an economic perspective, this would encourage government policy to focus on the development of one or two communities. However, economics are not the sole determinant of government policy. While focusing development activities on a single community may have its advantages from an economic viewpoint, these advantages may be outweighed by social or political considerations.

D. CONSTRAINTS TO IMPORT SUBSTITUTION

Based on the government and private sector organizations contacted, the major constraints to greater import substitution in the N.W.T. are as follows:

1. Shortage of Entrepreneurs

The role played by entrepreneurs in import substitution is to identify opportunities and to act upon them. The N.W.T. has a shortage of entrepreneurs for the following reasons: the size of the local population is limited; the average level of education is low; there are a limited number of successful business role models; and the renumeration in non-entrepreneurial activities is high.

The feasibility of importing the requisite entrepreneurial skills from other regions is constrained by the preference expressed by entrepreneurs for familiar environments and by the costs of migration. In order to offset this constraint, there are a number of government programs in the N.W.T. to expand the base of entrepreneurial skills through management development and training programs.

2. Availability of Capital

Given the underdeveloped nature of the N.W.T. economy, the volume of savings available for investment in new enterprises is negligible. The shortage of internally generated capital is compounded by the unwillingness of most lending institutions to extend loans in the N.W.T., particularly to inexperienced business people. The cost of capital is also higher in the N.W.T. than elsewhere because of the inherent instability of the economy which is heavily reliant on a handful of export industries.

Consequently, the growth of small businesses must follow an incremental growth pattern where the profits must be reinvested into the business in order for it to grow. This constraint restricts the ability of small businesses to react to changes in the marketplace. A number of government programs are available to ease this constraint by providing grants, subsidies, loan guarantees, and venture capital.

3. Limited Flow of Information

A major constraint to import substitution in the N.W.T. is the limited flow of information. In February, 1987, the G.N.W.T. Department of Economic Development and Tourism sponsored a Northern Food Conference. This conference enabled members of the private and public sectors to exchange information on markets, technology, government programs, production capabilities, and economic constraints. A major finding was how little information was shared between groups in the Territories. Many purchasers were not aware of the quality or consistency of products available from northern suppliers. Similarly, many producers had not been in contact with potential buyers before and had only a rudimentary understanding of the market expectations and preferences.

4. High Operating Costs

N.W.T. entrepreneurs face higher operating costs than southern producers as a consequence of diseconomies of small-scale production and higher raw

material and labour costs. The G.N.W.T. has developed an Northern Preference Policy which is a business incentive policy to give northern residents the opportunity to benefit from dollars spent in the North and to help offset high operating costs.

The Northern Preference Policy grants a price advantage to northern suppliers when competing against southern suppliers. The price advantage is 20% on contracts valued at less than $5,000; 10% on contracts valued between $5,000 and $1,000,000; 10% on the first one million dollars and 5% on the remainder for contracts exceeding $1,000,000. The maximum price advantage for any contract is $175,000.

There is an approved list of Northern contractors eligible for the advantage. To apply, a business must be majority-owned by northern residents (resident in the N.W.T. for at least three years) or have carried out business in the N.W.T. for at least 10 years prior to December 1984, and must maintain a resident manager and bona fide place of business in the N.W.T.

In the case of government purchases, many of the northern firms simply do not have the financial and human resources to complete the tendering process required. The problem of high transaction costs is particularly severe for Federal Government purchases which may be conducted out of Ottawa or Edmonton.

According to the Federal Government representatives contacted, the disadvantages faced by northern firms are as follows:

a. The location of the suppliers in relation to the final destination.

   Most N.W.T. suppliers are resident in the larger centers, while the materials are required throughout the Territories. In some

instances, northern suppliers do not have any transportation advantages over southern suppliers when servicing remote areas; in fact, the northern routes are often more costly.

b. Supply to remote communities is often on a once or twice per year basis.

The supplies are marshalled from a variety of points to the most accessible shipping point which is usually in the south. Northern suppliers do not have the storage, purchasing and transportation capabilities, or the access to basic supplies required to serve as the marshalling point.

c. The G.N.W.T. Northern Preference Policy encourages wholesalers to set up facilities in the N.W.T.

However, the duplication of costs, and higher transport, holding and operating costs in the north means that these wholesalers are at a substantial price disadvantage with southern suppliers. For the Federal Government, which does not have a Northern Preference Policy, the price discrepancy is sufficient in most cases to warrant the selection of a southern supplier.

d. Most wholesalers in the N.W.T. do not have a service capability.

For this reason, end-users prefer to deal with southern suppliers who can provide after-sales-service.

5. Availability of Skilled Labour

The exploitation of business opportunities often requires specialized skills and abilities in functions such as production, processing, or product handling. Unfortunately, the skills inventory in the N.W.T. is constrained by the low level of education and limited work experience of many resident Northerners. This constraint prohibits the establishment of some

enterprises and necessitates importing southern labour in others. To overcome this constraint, there are a number of government programs that provide support through recruitment, apprenticeship, training, and education programs.

The objectives of these programs are to provide Northerners with the skills necessary to undertake new endeavours or to replace individuals presently imported from outside the Territories. However, the ability of any education, training, or on-the-job program to accomplish these objectives is constrained by the following factors:

a. The individuals entering the programs often have limited work experience and formal education.

b. Many of the key positions require extensive technical and specialized training beyond the scope of the programs.

c. Wage employment related to import replacement production is viewed by many Native residents as secondary to the subsistence mode of production. When the graduates are interested in only seasonal work, the cost of the programs is effectively doubled because twice as many people must be trained.

d. The level of mobility amongst Native northerners is lower than found elsewhere in Canada. As a result, the training can be made redundant if the position is moved to a new locality.

e. The training programs are designed for southern production facilities and may not be consistent with the requirements of northern businesses.

In summary, although education and training programs can be effective on a limited scale (for example, training people in meat handling procedures or logging), the programs are not likely to seriously reduce the need to import labour in the near term.

TABLE 2

VALUE OF IMPORTS BY EACH REGION
IN N.W.T.
1984

Type of Goods Imported	Kitikmeot	Keewatin	Ft. Smith	Inuvik	Baffin	Total
Fuel (1982)	$ 8,795,000	$ 8,550,100	$ 29,862,000	$ 25,831,000	$17,586,314	$ 90,624,414
Food (1984)	2,932,000	12,048,000	66,575,600	32,120,800	17,384,250	131,060,650
Lumber	2,856,000	1,962,100	29,738,400	15,658,500	17,181,242	67,396,242
Vehicles and Machinery	2,896,200	6,402,500	393,138,200	126,049,100	18,935,990	547,421,990
General Merchandise	906,700	22,931,600	203,455,000	29,536,700	10,828,580	267,658,580
TOTAL	$18,385,900	$51,894,300	$722,769,200	$229,196,100	$81,916,376	$1,104,161,876

Source: Economic Base Line Studies, G.N.W.T. Department of Economic Development and Tourism

III. DESCRIPTION OF IMPORTS

This chapter provides a description of the types and value of goods and services imported into the N.W.T.

A. IMPORTS BY REGION

The value and type of goods imported by each region in the N.W.T. is provided in Table 2. As shown, the value of imports to all five regions totals $1.104 billion which is only slightly less than the total Territorial Gross Domestic Product in 1984.

The types of goods and services imported by each region in the N.W.T. are briefly summarized below:

1. Fort Smith

Fort Smith region has the largest population of the regions with a total of 24,790 people (Bureau of Statistics estimate, June, 1985). The region contains three of the five centres in the N.W.T. with more than 2,000 residents (Hay River, Fort Smith, and Yellowknife). The largest of these is Yellowknife which contains approximately 11,000 residents, roughly 22% of the Territorial population.

As indicated in Table 2, the Fort Smith region purchased two-thirds (66%) of the total value of goods and services imported into the N.W.T. Vehicles and machinery account for a high proportion of total imports indicating that new economic activity in this region is high.

Import substitution opportunities are likely to be greatest in regions where imports are the highest because of the business and government sectors in the major centres which have ready access to southern supply lines.

2. Baffin

The Baffin region is the largest region geographically and the second largest in terms of population with an estimated population of 9,528 people. Most of the residents are Inuit and under the age of 25. The administrative office of the region is in Iqaluit. Other major centers in the region, all with fewer than 1,000 residents, include Cape Dorset, Igloolik, Pangnirtung, and Pond Inlet.

The transportation infrastructure in the Baffin Region is very limited; the longest road in the region is the 50 kilometer section between Arctic Bay and Nanisivik. Most communities in the Baffin region receive the bulk of their supplies (fuel, non-perishable foods, building materials, and vehicles and machinery) via the annual sealift from Montreal in August and September. For the remainder of the year, goods are shipped by mail and air cargo. As indicated in Table 2, the imports are relatively evenly divided between fuel, food, lumber, and vehicles and machinery.

3. Inuvik

The Inuvik region is the third largest of the regions with an estimated population of 8,228 people. The regional administrative offices are located in Inuvik, where the population has recently declined from approximately 4,000 to 2,500 as a consequence of a downturn in the oil industry and the closing of the military base. All other communities in the region have fewer than 1,000 residents with Aklavik, Fort Franklin, Fort McPherson and Tuktoyaktuk being the most prominent. The Dempster Highway links Fort McPherson and Inuvik with the south year-round (through the Yukon Territory). Winter roads link Inuvik with Aklavik and Tuktoyaktuk. From July through September, barge services link Hay River and Inuvik.

As indicated in Table 2, vehicles and machinery comprise the majority of goods and services imported into the Inuvik region in 1982. Most of the vehicles and heavy machinery imported are for use in hydrocarbon exploration and development.

4. Keewatin

Keewatin is the fourth largest of the regions with an estimated population of 4,832 people, most of whom are Inuit. The administrative offices for the region are in Rankin Inlet, a community of approximately 1,300 people. Baker Lake and Eskimo Point are the only other communities in the region with over 1,000 inhabitants. The region is remote and travel is by air and water transport. There are no roads between the communities in the region, although there is a bombardier taxi that travels between Rankin Inlet and Eskimo Point.

Food and general merchandise comprise the majority of goods imported into the region. Given the low level of economic activity in the region, it is not surprising that fuel and vehicle and machinery imports are comparatively low. The NTCL operates a summer sealift from Churchill to the Keewatin region, while perishable goods are flown in regularly from Winnipeg or Churchill.

5. Kitikmeot

Kitikmeot is, in terms of population, the smallest of the administrative regions with an estimated population of only 3,634 residents. The administrative offices for the region are in Cambridge Bay, a community of just under 1,000 residents. Coppermine and Gjoa Haven are other communities in the region with over 500 residents. The region is accessible year-round by air only. There are no winter roads. Most communities receive only one barge shipment per year; the barges are loaded in Hay River, travel up the Mackenzie River and then east along the northern mainland coast. Perishable products are imported by air from Yellowknife and Edmonton. As indicated in Table 2, fuel products represent almost one half of the goods imported.

TABLE 3

VALUE OF GOODS PURCHASED BY THE FEDERAL AND TERRITORIAL GOVERNMENT DEPARTMENTS CONTACTED

1985 - 86

($000's)

Commodity	Federal Government		G.N.W.T.		Total			% from
	North	South	North	South	North	South	Total	South
Aircraft & Marine	$ 8.9	$ 563.2	$ 50.8	$ 52.9	$ 59.7	$ 616.1	$ 675.8	91.2%
Motor Vehicles	1,203.9	398.5	2,111.5	904.9	3,315.4	1,303.4	4,618.8	28.2
Tractors	0.0	2.0	815.4	90.6	815.4	92.6	908.0	10.2
Parts	70.7	334.2	702.7	0.0	773.4	334.2	1,107.6	30.2
Tires, Tubes, Acces.	65.9	326.2	0.0	60.9	65.9	387.1	453.0	85.5
Machinery & Heavy Equip.	24.0	987.5	261.6	140.8	285.6	1,128.3	1,413.9	79.8
Small Equip. & Tools	1,185.4	7,243.4	184.7	533.6	1,370.1	7777.0	9,147.1	85.0
Hardware, Lumber, Building	919.6	1,289.9	423.8	0.0	1,343.4	1,289.9	2,633.3	50.0
Electrical & Comm.	520.7	8,244.1	222.3	161.0	743.0	8,405.1	9,148.1	91.9
Chemicals	0.0	0.0	199.8	0.0	199.8	0.0	199.8	0.0
Printing	0.0	0.0	409.8	378.2	409.8	378.2	788.0	48.0
Furniture & Appliances	77.7	579.2	1,792.5	732.1	1,870.2	1,311.3	3,181.5	41.2
Office & Computer Eqp. & Supplies	191.7	2,755.9	4,211.6	2,671.7	4,403.3	5,427.6	9,830.9	55.2
Cleaning & Misc. Eqp.	118.4	221.8	336.2	682.5	454.6	904.3	1,358.9	66.6
Textile & Clothing	23.4	627.8	116.4	154.4	139.8	782.2	922.0	84.8
Misc. Supplies	0.0	0.0	127.9	0.0	127.9	0.0	127.9	0.0
Food	732.1	415.3	833.2	5.6	1,565.3	420.9	1,986.2	21.2
Fuel	3,342.9	18,450.1	486.2	23,820.7	3,829.1	42,270.8	46,099.9	91.7
Metal Products & Misc.	18.7	493.8	202.8	10.7	221.5	504.5	726.0	69.5
Other	2,702.3	9,966.8	0.0	0.0	2,702.3	9,966.8	12,669.1	78.7
TOTAL	$11,206.3	$52,899.7	$13,489.2	$30,400.6	$24,695.5	$83,300.3	$107,995.8	77.1%

B. TYPES OF GOODS IMPORTED

In order to obtain a more detailed list of the goods and services imported into the N.W.T., we sent questionnaires to all of the purchasing agents in the territorial and federal government departments. Responses were received from a total of 9 Federal government departments and 4 Territorial government deparments contacted. From each government department, we obtained information on the value of the commodities and services purchased from both northern and southern firms in 1986.

We also distributed questionnaires to the major companies in the N.W.T. to determine the volume of goods imported into the N.W.T. A total of 48 companies responded. The number and type of companies that responded is as follows:

NUMBER OF PRIVATE SECTOR RESPONDENTS

Sector	Number of Respondents
Primary industry	7
Wholesale and Retail trade	17
Service	17
Manufacturing	7
Total	48

A summary of the commodities purchased by the Territorial and Federal government departments that responded is provided in Table 3. We have also indicated the proportion of goods purchased from northern and southern distributors. As indicated in Table 3, the total value of commodities purchased in 1986 by the government departments contacted was approximately $108.0 million. Of this total, purchases by the Federal government departments contacted were $64.1 million while purchases by the Territorial government departments contacted were approximately $43.9 million.

TABLE 4

VALUE OF GOODS PURCHASED BY THE PRIVATE SECTOR COMPANIES CONTACTED 1986

Commodity	Sector									
	Primary		Trade		Service		Manufacturing		Total	
	Value ($000)	% from South	Value ($000)	% from South	Value ($000)	% from South	Value ($000)	% from South	Value ($000)	% from South
Capital Purchases:										
Plant	$ 0	100.0	$ 150	100.0	$ 2,750	100.0	$ 0	100.0	$ 2,900	100.0
Machinery and Equipment	34,000	100.0	641	96.2	1,531	82.4	53	100.0	36,225	97.0
Vehicles	250	100.0	0	100.0	891	62.4	6	0.0	1,147	48.5
Parts and other capital purchases	80	43.7	320	37.5	2,580	68.5	2,750	0.0	5,730	33.5
Sub-Total	34,330	99.1	1,111	80.6	7,752	83.6	2,809	1.9	46,002	90.1
Office Supplies	1,227	95.4	194	33.7	980	50.5	24	36.0	2,425	71.7
Operating Materials	-	-	19,041	93.9	25,800	75.0	16,837	98.6	61,678	87.3
Total Purchases	$35,557	98.9%	$20,346	92.6%	$34,532	76.2%	$19,670	84.7%	$110,105	88.1%

Source: Don Ference & Associates Ltd.

Of the total commodities purchased by the government departments contacted, a total of $83.3 million, or 77.1% of the commodities, were purchased directly from suppliers in southern Canada. The remaining $24.5 million of commodities were purchased through northern suppliers and distributors.

The proportion of commodities purchased from northern suppliers is higher for the territorial government than the federal government as shown below:

PROPORTION OF GOODS PURCHASED
FROM NORTHERN SUPPLIERS

Government Sector	% from Northern Suppliers
Federal	17.5%
G.N.W.T.	30.7%
Total	22.9%

The total value of goods purchased by the sample of 48 private companies contacted was $110.1 million as shown in Table 4. Of this total, $97.0 million or 88.1% was purchased from southern suppliers while the remaining $13.1 million or 11.9% of commodities were purchased directly from northern suppliers. The private companies sampled, therefore, purchased less of their commodities from northern suppliers than either the Territorial or Federal government.

An analysis of the types of goods purchased by the private and public sector in the N.W.T. and the proportion of each major type of good purchased from northern and southern suppliers is provided below:

1. Machinery and Equipment

Machinery and equipment represented the largest value of commodities purchased by the private companies sampled. As indicated in Table 4, total expenditures on equipment by the private sector companies sampled was $36.2 million. Of this amount, almost all was purchased from southern suppliers as only 3.0% of the machinery and equipment was purchased locally.

The total value of equipment (heavy equipment and small equipment and tools) purchased by the Territorial and Federal departments contacted was about $9.4 million in 1986. The majority of the equipment purchased was also imported from southern suppliers.

2. Motor Vehicles

As shown below, both the Federal and Territorial governments purchased a greater proportion of their vehicles from northern firms as compared to the private companies contacted:

VEHICLE PURCHASES

Sector	Total Value of Vehicles Purchased	% Purchased from Northern Suppliers
Federal Government	$1,602.4	75.1%
Territorial Government	3,016.4	70.0%
Private Companies	1,147.0	51.5%
Total	$5,765.8	62.8%

3. Aircraft and Marine Vessels

The federal government organizations contacted purchased almost all of their aircraft and marine vessels from southern Canada while the Territorial government divided purchases almost equally between northern and southern suppliers.

4. Equipment and Vehicle Parts

The source of equipment repairs and vehicle parts is similar to that for the vehicles purchased. As indicated in Table 3, 30.2% of the parts bought by the Federal and Territorial governments contacted were purchased from southern Canada which is almost equivalent to the proportion (28.2%) of vehicles purchased from southern Canada. A similar trend is evident in the private sector which indicates that companies tend to purchase parts where the initial vehicles and equipment were purchased.

5. Tires, Tubes and Accessories

The total value of tires, tubes and accessories purchased by the territorial and federal governments contacted was $453,000 in 1986. Of this total, 85.5% was purchased from southern suppliers while only a small proportion (14.5%) was purchased locally.

6. Hardware, Lumber and Building Supplies

The purchasing of hardware, lumber and building supplies by the Territorial and Federal governments contacted was quite different. The federal government departments contacted purchased a greater proportion (58.4%) of their requirements from southern suppliers while the Territorial government purchased all of its supplies locally.

7. Electrical and Communications Equipment

The total value of electrical and communications equipment purchased by the Territorial and Federal government departments surveyed was $9.15 million in 1986. The majority (91.5%) of this equipment bought by the Federal government was purchased from southern suppliers. The Territorial government, however, purchased a greater proportion (52.0%) of its requirements from local distributors.

8. Furniture and Appliances

The total value of furniture and appliances purchased by the government departments contacted was $3.2 million. Approximately 41.2% was imported while the remainder was purchased locally.

9. Office and Computer Equipment and Supplies

The total value of office and computer equipment and supplies purchased by the private and public organizations contacted was $12.2 million. As shown below, the Territorial government departments purchased a

TABLE 5

VALUE OF SERVICES PURCHASED
BY THE GOVERNMENT DEPARTMENTS CONTACTED
1985 - 86
($000's)

Service	Federal Government		G.N.W.T.		Total			% from
	North	South	North	South	North	South	Total	South
Accomodation	$ 29.7	$ 13.5	$ 0.0	$ 0.5	$ 29.7	$ 14.0	$ 43.7	32.0
Business								
Cleaning & Maint.	2,496.1	20.5	545.5	30.0	3,041.6	50.5	3,092.1	1.6
Carpet & Drapes	2.2	100.0	0.0	0.0	2.2	100.0	102.2	97.9
Temporary Help	0.0	140.0	0.0	0.0	0.0	140.0	140.0	100.0
Office Assistance	8.4	0.0	8.4	3.8	16.8	3.8	20.6	18.5
Building Services	472.5	102.2	0.0	0.0	472.5	102.2	574.7	17.8
Construction								
Major	1,084.5	6,856.3	37,224.2	8,621.6	38,308.7	15,477.9	53,786.6	28.8
Road	0.0	0.0	5,279.6	452.8	5,279.6	452.8	5,732.4	7.9
General	0.0	0.0	3,149.7	653.7	3,149.7	653.7	3,803.4	17.2
Consulting								
Engineering	95.8	363.5	0.0	0.0	95.8	363.5	459.3	79.1
Management	0.0	90.5	512.9	1,282.7	512.9	1,373.2	1,886.1	72.8
Personnel	475.5	0.0	62.7	197.6	538.2	197.6	735.8	26.9
Legal	4.7	0.0	340.7	40.0	345.4	40.0	385.4	10.4
Computer	0.0	0.0	521.0	203.5	521.0	203.5	724.5	28.1
Other	1,364.1	1,475.8	569.7	350.3	1,933.8	1,826.1	3,759.9	48.6
Advertising	1.5	0.0	165.9	18.6	167.4	18.6	186.0	10
Fire Fighting	0.0	1,337.1	0.0	0.0	0.0	1,337.1	1,337.1	100.0
Audio Visual	0.0	0.0	38.0	0.0	38.0	0.0	38.0	0.0
Group Homes	0.0	0.0	1,953.2	600.0	1,953.2	600.0	2,553.2	24.0
Language	0.0	339.7	4.8	0.0	4.8	339.7	344.5	98.6
Personal	150.0	0.0	15.8	0.0	165.8	0.0	165.8	0.0
Photography & Mapping	12.0	0.0	135.0	170.7	147.0	170.7	317.7	53.7
Printing	55.4	50.7	131.0	40.0	186.4	90.7	277.1	32.7
Real Estate & Rental	1,548.6	9,803.5	617.8	42.8	2,166.4	9,846.3	12,012.7	82.0
Transportation	1,058.3	20,277.0	43.0	0.0	1,101.30	20,277.0	21,378.3	94.9
Water, Sewer & Garbage	284.4	0.0	314.5	31.4	598.9	31.4	630.3	5.0
NES	1,228.0	462.4	560.3	20.8	1,788.3	483.2	2,271.5	21.3
TOTAL	$10,371.7	$41,432.7	$52,193.7	$12,760.8	$62,565.4	$54,193.5	$116,758.9	46.4%

Source: Don Ference & Associates Ltd.

considerably smaller proportion (38.8%) of office supplies from southern distributors as compared to the proportion of office supplies purchased by the Federal government departments or by private companies:

PROPORTION OF OFFICE SUPPLIES
PURCHASED FROM SOUTHERN SUPPLIERS

Sector	Total Purchases ($000's)	% of Purchases from Southern Suppliers
Federal Government	$ 2,947.6	93.5%
G.N.W.T.	6,883.3	38.8%
Private Companies	2,425.0	71.7%
Total	$12,255.9	58.5%

10. Fuel

Fuel purchases by the government departments surveyed totalled $46.0 million. Approximately 91.7% of this fuel was obtained from southern suppliers.

11. Metal Products

The Territorial government departments contacted obtained a majority of their metal products through northern suppliers. In contrast, only 4% of the metal products bought by the Federal government departments surveyed were obtained through northern suppliers.

C. TYPES OF SERVICES IMPORTED

Tables 5 and 6 provide our survey findings regarding the value and source of services purchased by the government departments and private companies contacted, respectively. The total value of services provided by all of the organizations contacted was $127.8 million.

TABLE 6

VALUE OF SERVICES PURCHASED BY PRIVATE SECTOR COMPANIES CONTACTED 1986

Service	Sector									
	Primary		Trade		Service		Manufacturing		Total	
	Value ($000)	% from South	Value ($000)	% from South	Value ($000)	% from South	Value ($000)	% from South	Value ($000)	% from South
Legal	$ 0	100.0	$ 98	2.6	$ 120	44.2	$ 45	66.7	$ 263	32.5
Accounting	260	96.2	189	44.4	793	86.6	80	35.5	1,322	79.4
Engineering	100	100.0	0	100.0	22	0.0	0	100.0	122	82.0
Computer	0	100.0	15	100.0	23	5.2	0	100.0	38	42.7
Management Consulting	0	100.0	0	100.0	35	0.0	100	100.0	135	74.1
Other Services	5,000	0.0	12	0.0	4,104	55.8	4	100.0	9,120	25.2
Total	$ 5,360	6.5	$ 314	32.3	$ 5,097	59.4	$ 229	70.9	$ 11,000	33.1

Source: Don Ference & Associates Ltd.

As shown below, the Federal government purchased a much higher proportion of services from southern suppliers while the Territorial government and private companies purchased the majority of their services locally:

PROPORTION OF SERVICES PURCHASED
FROM SOUTHERN SUPPLIERS

Sector	Total Value of Services Purchased ($000's)	Proportion Purchased From Southern Suppliers
Federal Government	$ 51,804.4	80.0%
G.N.W.T.	64,954.5	19.7%
Private Companies	11,000.0	33.1%
Total	$127,758.9	45.2%

As indicated in Table 5, the major types of services purchased by the Federal and Territorial government departments surveyed include business services, construction, consulting, real estate and transportation services. The types of services used by the public sector where the major proportion was supplied from southern Canada include temporary help, fire fighting, language, photography and mapping, real estate and transportation services.

As indicated in Table 6, the private companies contacted purchased a total of $11.0 million of services. Of this total, a majority were purchased from northern firms with the exception of accounting, engineering and management consulting services of which a majority were purchased from southern firms.

D. IMPORT SUBSTITUTION OPPORTUNITIES BY SECTOR

The following chapters contain our findings and conclusions regarding the import substitution opportunities in each of the major sectors in the N.W.T. economy. For each sector, we have first analyzed the types of import substitution opportunities available and the development strategies required to offset existing constraints and capitalize on the opportunities identified.

TABLE 7

VALUE OF FOOD PRODUCTS CONSUMED IN N.W.T.
1984
($000's)

Community	Imported Food		Subsistence Production		Total	
	Value	%	Value	%	Value	%
Kitikmeot	2,932	24.5	9,030	75.5	11,962	100.0
Keewatin	12,047	61.0	7,697	39.0	19,744	100.0
Fort Smith	66,576	98.7	895	1.3	67,471	100.0
Inuvik	32,120	95.8	1,417	4.2	33,537	100.0
Baffin	17,385	50.2	17,215	49.8	34,600	100.0
Total	131,060	78.3	36,254	21.7	167,314	100.0

Source: Economic Base Line Studies, G.N.W.T. Economic Development and Tourism

IV. FOOD

This chapter provides a description of the opportunities to replace the food imported into the N.W.T. and the actions required by government to achieve greater import substitution.

A. INTRODUCTION

Excellent import substitution opportunities exist in the replacement of imported foods with northern produced foods. Northern foods include country foods, such as fish and game, and foods produced by small-scale agricultural projects such as greenhouses and hog farms.

As mentioned in Chapter II, there are four evaluative criteria for identifying import substitution opportunities; namely, demand in the local market, local costs of production, costs of importing the product and the competitive situation. Each criteria is discussed below in order to show the import replacement potential of northern foods:

1. Demand in the Local Market

The Northwest Territories is heavily reliant on imported foodstuffs. Seventy-eight percent of the total food consumed is imported. The estimated value of food consumption in the Territories is $167 million, which is comprised of $131 million of imports and $36 million of country foods.

The origin of the foods consumed in each region is shown in Table 7. As the table includes data from two different years (food imports for 1984 and subsistence production for 1982), it is used for illustrative purposes only. As indicated, country foods represent 21.7% of the food consumed in the N.W.T. Most of the consumption of country foods occurs in the Eastern Arctic regions where the communities are more isolated.

Country food consumption is lower in the Fort Smith region where there are strong southern supply lines. Consequently, there exists a significant potential market to replace the foods imported into the Fort Smith region, which comprises 40% of the total food market in the Territories.

2. Cost of Production

Food production in the north can be competitive with that in the south. The costs to transport food from southern Canada are very high. For animals harvested from wild populations, it is not necessary to incur feed costs or a capital outlay for buildings and equipment. Consequently, depending upon accessibility, the costs of local foods may be lower in comparison to imported southern foods.

3. Cost of Importing the Product

The strongest argument favouring import substitution within the food industry is the high proportion of transportation costs relative to landed costs. The freight cost to ship food from southern Canada to the five communities in the N.W.T. is provided below:

AVERAGE FREIGHT COSTS PER POUND

Community	Cost Per Pound
Iqaluit	$.61
Rankin Inlet	.70
Cambridge Bay	.70
Inuvik	.18
Yellowknife	.08

As indicated, the freight cost for the more remote communities such as Rankin Inlet and Cambridge Bay is much greater than that for Yellowknife, which is located on a supply line from Alberta. As an illustration, freight costs amounted to $3.49 million or 20% of the total value of foodstuffs imported into the Baffin region in 1982.

TABLE 8

COMPARISON OF PROTEIN AND FAT CONTENT OF COUNTRY FOODS WITH SOUTHERN FOODS
(g/100g)

Country Foods			Southern Foods		
Item	Protein	Fat	Item	Protein	Fat
Caribou	27.0	1.2	Veal Side	19.0	12.0
Moose	26.0	1.1	Chicken	20.0	13.0
Seal	32.0	1.8	Pork Side	12.0	45.0
Whale	24.0	0.7	Lamb Side	16.0	28.0
Oognik	27.0	0.4	Beef Roast	17.0	23.0
Polar Bear	26.0	3.1	Beef Steak	16.0	25.0
Walrus	27.0	12.0	Hamburger	16.0	28.0
Whitefish	25.8	1.3	Frankfurter	14.0	21.0

Source: "Dietary Habits and Nutritional Base of Native Populations" by Dr. Otto Schaefer and Hean Steckle, August 1980

4. Competitive Situation

Northern-produced foods have a definite competitive advantage over their southern imports in several respects. Northern agricultural production is fresh and of excellent quality. Country foods are available in remote communities where other forms of food production are not possible.

Furthermore, the nutritional benefits of country foods exceed those of southern foods as illustrated in Table 8. On a wet matter basis, game and fish have significantly more protein than commerical meat and are much lower in fat. This is in part attributed to the fact that some southern foods have a higher moisture content from country foods. The fats are also less saturated in country foods such as fish, sea mammals, polar bears and caribou.

Another benefit of northern food production is the improved social well-being of community achieved through food harvesting. Commercial pride, co-operation and responsibility are fostered, new jobs are created and new skills taught, and the food produced is healthier and of better quality than that imported.

B. COUNTRY FOODS

A description of the major country foods in the N.W.T. and the viability of expanding the sales of country foods is described below:

1. Leading Country Foods

The three major country foods are caribou, muskox and arctic char, which are described below:

a. Caribou

The N.W.T. caribou population is estimated at 1.1 to 1.6 million animals. The total number of caribou harvested in the N.W.T. is estimated to range between 56,000 and 57,000. Of this total, almost all are harvested for domestic subsistence purposes.

The total commercial caribou quota is 4,000 animals which can either be harvested by hunting outfitters or for commercial sale as country food. Less than one quarter of the existing caribou quota is currently being utilized. As a result, there exists a considerable surplus of caribou for sale as country food.

b. Muskox

The total muskox population in the N.W.T. is estimated to be approximately 57,100. The commercial quota is 2,499 animals of which approximately 400 are harvested. The existing commercial quota could easily be doubled if sufficient demand existed. The muskox population in the N.W.T., therefore, is considerably underutilized.

c. Arctic Char

The combined domestic and commercial char harvest volumes have ranged from 330,000 pounds to 666,000 pounds per year. The volume of commercial char harvested in 1986 was approximately 127,600 pounds of which the majority was sold by the Freshwater Fish Marketing Corporation in southern Canada and the United States. The fish not sold by FFMC is sold by wholesalers and retailers in the N.W.T.

The total quota for Arctic char in the N.W.T. is 813,000 pounds, which is more than double the existing harvest volumes. While there may appear to exist considerable potential to increase char harvests, many of the potential fishing sites are located away from existing communities and it would not prove economical to harvest these resources. Other factors that have constrained char harvest volumes are limited markets and a lack of awareness of char in southern markets.

d. Other Country Foods

Other country food products include whitefish, trout, shellfish, arctic hare, moose, seal meat, and muktuk. These products are consumed mainly on a domestic subsistence basis and not sold commercially in the N.W.T.

2. Market Potential

Within the N.W.T., the market for country foods is relatively small. In Inuvik, Ulu Foods has been able to capture a market share of about 3% of the total meat consumption. Per capita retail purchases of country foods in Inuvik are currently about one pound of muskox and four pounds of caribou per annum. If this level of sales were achieved throughout the N.W.T., the total number of animals required to meet this demand would be about 340 muskox and 1,360 caribou. Total sales revenue based on an average price of $5.00 per pound would be about $1.3 million.

The sale of country foods to N.W.T. markets alone would result in the utilization of just a small portion of the current commercial quotas for caribou and muskox as shown below:

UTILIZATION OF QUOTAS FOR COUNTRY FOODS

Species	Current N.W.T. Quota	Potential N.W.T. Country Food Market	Surplus Available
Muskox	2,499	340	2,159
Caribou	4,000	1,360	2,640

The N.W.T. demand for country foods, therefore, can easily be saturated. Once this market is saturated, it will be necessary to seek southern markets in order to fully utilize the existing commercial quotas for wildlife.

The game meat market in southern Canada and other parts of the world is growing rapidly and available supplies are not sufficient to meet the demand. Caribou, a form of venison, has sold well in Canada and the U.S. As a result, there exists considerable potential to export caribou and muskox to southern markets.

In addition to caribou and muskox, country food sales revenues in the N.W.T. could be increased from greater sales of char in the N.W.T. market. The level of sales effort devoted to penetrating the N.W.T. market have not been substantial as most of the fish is shipped to FFMC in southern Canada. While market research has not been undertaken on the demand for char in the N.W.T., we feel that current sales volumes could be easily doubled if a concerted effort was made to sell char through existing retail outlets, especially in the western N.W.T. market. If current sales were doubled, an additional 100,000 pounds could be sold resulting in incremental sales revenues of about $500,000 based on a retail sales price of $5.00 per pound.

3. Constraints to Country Food Production

The constraints to country food production fall into the following categories: market resistance, product quality, supply consistency and economics.

a. Market Resistance

The N.W.T. market can be segmented into Native and non-Native components. Each has its particular constraints. The Native market is familiar with country foods. However, further market penetration is constrained by two factors. First, the level of country food consumption is declining due to a change in taste preferences. Many young Natives, especially those in predominantly non-Native communities, are being brought up on southern foods and have not acquired a taste for the traditional

northern fare. Second, the Native population is already harvesting most of its requirements for country foods. As a result, increases in Native utilization of country foods is limited to those communities experiencing shortages in country food.

The second market segment is the population in the predominantly non-Native communities such as Yellowknife. This market also consists of Natives in larger communities that have switched to the wage economy and do not have time for hunting and trapping to supply their domestic subsistence needs. This market segment has only a limited awareness of country foods. A higher profile must be developed by more northern food retailers and restaurants carrying northern foods before this market can be tapped.

The marketing of country foods on a retail basis in the N.W.T. has only been initiated recently. Ulu Foods in Inuvik, the largest country food retailer in the N.W.T., sold approximately 15,000 pounds of muskox and 20,000 pounds of caribou in 1986 in Inuvik and on a wholesale basis to other communities in the western Arctic. The other country food products sold by Ulu Foods are rabbit, char, trout and whitefish.

There exists two other very small retail country food outlets in the N.W.T. One is located in Inuvik and the other store, Kals Country Foods, is located in Rankin Inlet. The volume of products sold to date by these operators, however, has been very small.

b. Distribution Network

A distribution strategy for country foods has not been fully developed. The marketing of country foods through specialty retail outlets has not proven viable for the following reasons:

i. There does not exist a sufficient number of products to justify a separate retail outlet.

ii. The local market is not large enough to generate sufficient revenues. As an illustration, the revenues from the sale of country food were only $200,000 per year in Inuvik and $40,000 in Rankin Inlet.

iii. The revenues are insufficient to meet the overhead and wage costs to operate a retail outlet.

In order to be viable, therefore, country foods must be distributed through existing retail outlets such as Hudson's Bay Company and local grocery stores.

c. Lack of Meat Inspection

Meat inspection is required for all meat exported from the Territories but not for the meat consumed in the Territories. However, the major grocery stores in the N.W.T. are not willing to handle meat unless it is inspected. As a result, if country foods are to be distributed through existing grocery wholesalers and retail distributors, slaughtering facilities and meat packing practices will have to meet the requirements of Agriculture Canada.

At the present time, there does not exist a slaughtering facility that meets the requirements of Agriculture Canada in the N.W.T. Considerable progress, however, has been made by the Inuvialuit Game Council (IGC) in the development of a portable abattoir to satisfy the meat inspection requirements of Agriculture Canada for muskox. A muskox slaughter using a portable abattoir was conducted in December, 1985 that resulted in a federally-inspected product. However, certain improvements in the sanitation aspects of the abattoir operation are necessary prior to obtaining subsequent approvals.

A caribou harvesting project was also undertaken by IGC in order to develop an organized slaughter that would meet the meat inspection requirements of Agriculture Canada. However, problems were incurred as caribou, unlike muskox, are more difficult to herd which means they have to be killed in their environment and hauled to the abattoir operation. There is some question as to the acceptability of this procedure to Agriculture Canada.

There also exists a lack of meat processing facilities in the N.W.T. to cut up the carcasses into saleable portions. The existing processing facilities of Ulu Foods are not adequate to handle large volumes and do not meet the inspection requirements of Agriculture Canada.

d. Consistency of Supply

Very little planning has been undertaken to organize the supply of caribou and muskox from communities to centralized meat processing plants.

4. Economic Viability

The feasibility of establishing a wholesale country foods operation in the N.W.T. is currently being studied by the Inuvialuit Game Council. Because the feasibility study has not yet been completed, it is premature to assess the viability of the proposed country foods operation. However, the preliminary study results appear encouraging.

5. Development Strategy

The sequence of steps required, in order of priority, to develop the country foods sector in the N.W.T. are as follows:

a. Conduct research to increase the effectiveness of portable abattoirs.

The abattoirs should be easily portable and designed to accommodate both muskox and caribou. As part of this study, research should be conducted to ensure that the caribou and muskox slaughtered satisfy the meat inspection requirements of Agriculture Canada.

b. Conduct a logistics study regarding the most appropriate means of moving muskox and caribou from slaughter to the meat processing plant recently proposed to be constructed in the Inuvik region.

c. If the Inuvialuit Game Council's feasibility study results are positive, provide support for an initial meat processing plant in the Inuvik region to handle country foods.

d. Make arrangements with Agriculture Canada to initiate the inspection of meat slaughtered in the newly constructed country food processing plant.

e. Undertake negotiations to distribute country foods through existing grocery distribution systems in the N.W.T.

The distribution system for country foods should consist of existing meat wholesalers and grocery food stores. Once this distribution system has been established for country foods, harvests of muskox and caribou should be increased to satisfy the local market in the N.W.T. In addition, a greater proportion of the Arctic char harvest should be diverted to local rather than export markets.

f. Provide support for a major promotion program to increase the awareness and consumption of country foods in the N.W.T.

The government should encourage food retailers and restaurants to carry northern foods. A "Buy North" campaign that focuses upon food preparation methods and nutritional benefits should also be undertaken and directed at the consumer. To aid in developing consistent product quality, the government should provide standardized training in product handling, butchering, inspection and packaging.

g. Investigate the potential for additional sources of supply of muskox and caribou in other than the Inuvik region in order to supplement the supply of meat to the local and export markets.

Research should be undertaken to determine the feasibility of using the muskox on Victoria Island and Queen Maud Gulf. More accurate inventory assessments will likely be required in order to assess the sustainable yield of these herds. Similarly, resource assessments should be undertaken regarding the feasibility of using caribou herds throughout the N.W.T. where surpluses in commercial quotas currently exist.

This research should also include recommendations on how to best organize the Hunter and Trapper Associations (HTA) to harvest the amounts required. In addition, the study should investigate the need for local cold storage facilities where the harvests takes place.

h. A study should also be undertaken to assess the feasibility of intersettlement trade in N.W.T.

The viability of intersettlement trade in the N.W.T. has not yet been demonstrated. As a result, this area must be studied very closely before additional funds are invested in promoting intersettlement trade.

While an initial study was funded in the General Development Agreement (GDA), no comprehensive follow-up studies of intersettlement trade of country foods have actually been undertaken in the N.W.T. Substantial investments in community freezers and other infrastructure, however, are being proposed. Before any further steps are undertaken, it is important that a comprehensive feasibility study of intersettlement trade be undertaken.

This study should survey communities to determine the shortages experienced and the surpluses available. The study should also determine the most appropriate medium or form of exchange of goods between communities. In addition, the study should investigate the transportation costs, logistics and overall viability of intersettlement trade. Finally, the study should investigate whether intersettlement trade should form part of or compete with commercial sales of country foods through existing retail grocery stores.

i. Once the initial country foods processing plant is constructed in the Inuvik region, conduct feasibility studies to assess the viability of establishing additional processing plants in the Fort Smith, Keewatin and Kitikmeot regions in order to capitalize on available supplies of caribou and muskox.

j. If there exists sufficient market potential and the project appears viable, support should be provided to establish additional meat processing plants in the N.W.T. We feel that a maximum of two or three meat processing plants would be required. In addition, these other plants should not proceed until the first plant has developed a market and demonstrated viability.

C. SMALL-SCALE AGRICULTURE

Small-scale agriculture is the production of traditional southern meats and vegetables for consumption in the local market. Such production is technically feasible in the N.W.T. and has been on-going on a small scale since the seventeenth century.

1. Import Substitution Opportunities

A brief description of the small-scale agricultural projects that appear most viable for the N.W.T. are described below:

a. Hog Farms

The total demand for fresh pork in the Fort Smith region is estimated to be 503 tonnes. A total of 5,294 hogs would be required to supply the fresh pork consumed in the Fort Smith region and 10,895 hogs would be required to meet the total demand of the N.W.T. population.

A recent study entitled Small-Scale Agriculture in the N.W.T. indicated that hog production was viable in the Fort Smith region. Hog production, however, would not likely be viable in other regions of the N.W.T. due to high costs of transporting feed.

At the present time, there exists a small 14 animal hog farm in Fort Smith. The establishment of additional hog farms in the N.W.T. could easily displace the pork imported into the Fort Smith and Inuvik regions.

The sales revenues that would be obtained by displacing one half of the fresh (not processed) pork imported into the N.W.T. is estimated to be about $670,000 per year and would result in the creation of 12 full-time jobs. If hog production is to expand

considerably, however, a meat processing facility is required that satisfies the meat inspection requirements of Agriculture Canada. In addition, regular inspection of the meat would have to be undertaken before it would be handled by major grocery stores in the N.W.T.

b. Market Gardens

At present, there are two market farmers working an aggregate of 6 acres in the Fort Smith region. There are also four potato farms, each employing less than 10 acres in the Fort Smith region.

The cold season crops that can be grown in the N.W.T. include broccoli, cabbage, carrots, cauliflower, peas, onions, and potatoes. Current production of cold season crops other than potatoes equals less than one percent of the Hay River market for cold season crops. The four existing potato farms supply approximately 10% of the Fort Smith regional market. The existing farmers retail their product "at the farm gate".

The size of the market for cold season crops is estimated to be a total of 3,543 tons for the N.W.T., of which about one half of the market or 1,722 tons originates from the Fort Smith region. Based on recent studies, vegetable production would likely be limited to the Fort Smith region in the N.W.T. due to harsh climate conditions in other regions. The market for vegetable producers is also likely restricted to the Fort Smith region and possibly the Inuvik region as transportation costs would be prohibitive to ship vegetables from Fort Smith region to the eastern N.W.T. communities.

Therefore, if we assume that local vegetable producers could obtain 50% of the Fort Smith regional market, a total of 100

acres of land would be required. Of this total, about 74 acres would be required for potato production while 36 acres would be required to produce the other cold season crops.

The potential revenues that could be obtained from the production of 74 acres of potatoes would be $72,000 per year while the production of 26 acres of vegetables would result in wholesale revenues of about $180,000 per year.

The major constraints to the development of market gardens include uncertainty related to the land claims processes, shortage of financing to establish market gardens and a lack of interest by people in establishing market gardens. The low level of interest is reflective of the limited financial returns and the labour intensity of the operation.

c. Dairy Farms

A 75 dairy cow operation began producing milk in Yellowknife for the retail trade in February, 1987. The operation is comprised of two components: a dairy farm which produces the milk and Agriborealis which processes, bottles and markets the product.

The amount of milk produced by one dairy cow is estimated to be about 5,400 kilograms per year. The potential milk production volume of the Yellowknife dairy is approximately 405,000 kilograms per year which represents approximately one-third of the milk consumed each year in Yellowknife (equivalent to the production of 233 dairy cows). The primary competition is Alberta producers; however, the northern operation has not had problems in displacing imported product.

Based on Canadian per capita consumption of milk of 105.7 kilograms per year, a total 999 dairy cows are required to meet the total N.W.T. milk requirements. Due to the high cost of shipping feed into the eastern arctic, the production of milk is limited to the western N.W.T. If we assume that local dairies are able to capture 50% of the market in the Fort Smith and Inuvik region, an additional 260 dairy cows would be required. As a result, there exist potential to considerably expand the existing dairy operations in the N.W.T.

The incremental revenues obtained by increasing dairy production in the western Arctic by another 260 dairy cows would be about $1.59 million. In addition, substantial employment would be created as at least 2 or 3 major dairy farms would have to be established.

One major constraint to the further development of the dairy industry is that there do not exist northern milk testing facilities in the N.W.T. Consequently, milk samples must be sent south before the milk can be sold in the north.

d. Egg Production Facility

F & M Farms has set up egg production operations in Hay River. Because a quota has not yet been granted by the Canadian Egg Marketing Association (CEMA), the company is restricted to selling eggs in the N.W.T. The current production volume is about 1,200 dozen eggs per day from 17,000 hens.

Based on a per capita consumption of 12.75 kilograms of eggs per year, the total consumption of eggs in the N.W.T. is calculated to be 663 tonnes. At a production rate of 12.4 kilograms per hen, a total of 54,000 hens would be required to meet the egg requirements of N.W.T. residents.

The size of the market for eggs in the Fort Smith region is roughly equivalent to the production of 25,000 hens. The Hay River facility presently houses 17,000 hens and plans to increase production to a total of 30,000 hens. As a result, the facility will soon be capable of exceeding the egg requirements of the Fort Smith region.

The company currently sells eggs in Hay River, Pine Point, Fort Simpson, Fort Smith and Yellowknife. Once the local market is served, the company plans to further increase production to ship eggs to all of the other regions of the N.W.T. As a result, there does not appear to exist sufficient market potential for a second hen operation in the N.W.T.

As the existing facility expands, it will gradually reduce the volume of eggs imported from southern Canada. By increasing to 30,000 hens from 17,000, the existing facility will displace approximately 161 tonnes of eggs imported from southern Canada and the incremental revenues earned will be about $330,000 per year.

e. Poultry Farm

Poultry farming is not presently undertaken in the N.W.T., but a large scale chicken operation has been proposed for the Hay River area.

Based on an estimated per capita consumption of 17.3 kilograms per year, the estimated demand for poultry in the Fort Smith region is 400,000 kilograms and 880,000 kilograms for the entire N.W.T. Satisfying the total N.W.T. demand would require the production of approximately 300,000 chickens. In competing against large southern producers, a northern producer would face competitive disadvantages in the form of diseconomies of small-scale production and high transportation and operating costs.

The Fort Smith region is the most desirable location for a poultry farm due to its proximity to the largest markets in the N.W.T. and access to southern Canada for feed. The potential revenue of a 200,000 chicken operation would be about $390,000.

There exists a lack of information on the market potential or the economic feasibility of a potential poultry operation in the N.W.T. More detailed analysis is required, therefore, before the viability of a poultry operation in the N.W.T. can be determined.

f. Other Traditional Agricultural Operations

A recent study entitled Small Scale Agriculture in the N.W.T. investigated the viability of a number of other traditional agriculture operations for the N.W.T. including a 250 acre crop enterprise, a 250 acre hay enterprise and a 40 head cow-calf operation. The study findings are summarized below:

i. 250 Acre Crop Enterprise

There are some cereal and oil seed crops grown in the N.W.T. However, the economies of growing crops are very poor. The major factor contributing to the poor return is the high capital cost for equipment. A total of $311,250 is estimated to be required for the land, buildings and equipment.

ii. 250 Acre Hay Enterprise

Hay does not face the same competition as grain because it is not part of the Feed Freight Assistance Program. However, the return on capital, management and labour are nominal from a hay enterprise.

iii. 40 Head Cow-Calf Operation

The initial investment required for a 40 head cow-calf operation is estimated to be only about $15,000. The variable costs for items such as feed, however, are high resulting in a negative return. As a result, production of beef in the N.W.T. does not appear viable.

g. Wild Rice Production

The potential for growing wild rice in the Northwest Territories is currently being studied under the direction of the Agriculture Development Officer in the Fort Smith region. The first phase is to assess the technical feasibility of wild rice production.

If production appears technically feasible, funding for a second phase will be required to assess the economic feasibility of a wild rice operation. Based on the results of the second phase, a third phase may be warranted to set up a pilot wild rice operation.

2. Constraints to Development

The major constraints to the development of small-scale agriculture in the N.W.T. are as follows:

a. Lack of meat processing facilities that meet the requirements of Agriculture Canada.

b. Lack of regular meat inspection services.

c. Lack of northern milk testing facilities.

d. Freeze on large-scale agricultural development due to native land claims settlement.

e. Lack of government agricultural development policy for N.W.T.

f. Lack of people interested or experienced in agriculture.

g. Limited financial returns for most of the agricultural operations that could be undertaken in the N.W.T.

h. Lack of experience by stores in handling locally-produced products.

i. High initial capital investment for land and machinery.

j. Lack of financing for farmers.

k. High costs of production as major items such as feed and machinery must be imported.

3. Development Strategy

The development strategies required to overcome existing constraints and capitalize on the opportunities identified are described below:

a. Government support should be provided to establish hog operations in the Fort Smith region.

There appears to exist considerable potential to generate employment and increase revenues through hog production in the N.W.T.

b. In order for agricultural production in the N.W.T. to expand, government support and assistance will be required to establish proper animal slaughtering facilities.

c. Regular meat and milk inspection services will also have to be provided in order to ensure that the finished product satisfies the inspection requirements of Agriculture Canada.

d. High priority should be placed on assessing the viability of, and establishing, poultry operations in the N.W.T.

Since a total of 300,000 hens would be required to meet the N.W.T. demand, potential production could be substantial if proven viable.

e. Due to the lack of sufficient market potential, government support should not be provided to establish a second egg production facility in the N.W.T.

f. High priority should be given to establish additional market gardens in the Fort Smith region.

To do so, government support is required in the form of the promotion of the concept and the provision of start-up capital.

g. There exists sufficient market potential to expand the existing dairy operation in Yellowknife and establish a second dairy operation in the Fort Smith region.

Before a second dairy operation is established, a detailed feasibility study should be undertaken to demonstrate the viability of milk production in the N.W.T.

h. Another opportunity that should be investigated is wild rice production as a method of replacing food imported from southern Canada.

TABLE 9

MARKET FOR GREENHOUSE PRODUCTS IN N.W.T.
(000's pounds)

	Iqaluit	Rankin Inlet	Cambridge Bay	Inuvik	Yellowknife	Total
Potatoes	196	67 - 85	30 - 36	630 - 730	1,450	2373 - 2497
Salad Vegetables	151	70 - 75	29 - 31	260 - 285	775	1285 - 1317
Table Vegetables	88	34 - 38	15 - 17	190 - 215	525	825 - 883
Melons	7	2 - 3	2 - 3	30 - 35	60	101 - 108
Total	442	173 - 201	76 - 87	1,110 - 1,265	2,810	4,611 - 4805

Source: Study of Vegetable Markets in Selected N.W.T. Communities

D. GREENHOUSES

A solar greenhouse pilot project in Pond Inlet was recently established. The facility was originally set up as a cold frame greenhouse but has evolved into a fully insulated greenhouse heated through a solar collector situated on the roof. The operation has provided information on the advisability of hydroponic versus soil cultivation, storage requirements, solar heating, and the cultivation of 60 different vegetable varieties.

Assistance under the Economic Development Agreement was recently provided to undertake a waste heat greenhouse study for the production of fresh fruit in Tuktoyaktuk. In addition, a market study was also funded by EDA to identify the market prospects for greenhouse production in the communities of Inuvik, Yellowknife, Cambridge Bay, Rankin Inlet and Iqaluit. The major findings and conclusions of these studies are provided below:

1. Market Potential

The size of the market for fresh produce in each of the five communities examined as part of the EDA greenhouse market study are provided in Table 9. As indicated, the total market is estimated to range between 4.6 to 4.3 million pounds. Approximately one-half of the total market consists of potatoes, while salad vegetables and table vegetables account for the majority of the remaining market for greenhouse products.

We are concerned that some products such as potatoes may not be viable for greenhouse production. Their relatively low value may result in insufficient revenue to justify the costs involved. However, potatoes account for one-half of the total sales volume projected for greenhouse production in the report entitled Study Of Vegetable Markets In Selected N.W.T. Communities.

TABLE 10

VIABILITY OF GREENHOUSE PRODUCTION BASED ON WASTE HOT WATER IN INUVIK

Product	Estimated Production Costs	Wholesale Price of Imported Product
Leaf Lettuce (per head)	$1.65 - 1.85	$.80
Cucumber (per cucumber)	$1.35 - 1.55	$1.10 - 1.20
Tomato (per pound)	$1.80 - 2.09	$1.00

Source: Feasibility of Greenhouse in Inuvik, 1984

2. Economic Viability

In order for a greenhouse to operate profitably, the freight advantage would have to be sufficient to compensate for the cost differential between growing field crops in the south and greenhouse crops in the north. The size of the market and the freight advantages of each community investigated are presented in the following table:

VIABILITY OF GREENHOUSE PRODUCTION

Community	Market Size (000's lbs.)	Freight Advantage ($/lb)	Total Maximum Freight Advantage
Frobisher Bay	442	.61	$270,000
Rankin Inlet	173 - 201	.70 (avg.)	$121,000 - 141,000
Cambridge Bay	76 - 87	.70 (avg.)	$53,000 - 61,000
Inuvik	1,110 - 1,265	.18	$200,000 - 228,000
Yellowknife	2,810	.08	$225,000

Using this form of analysis, it is clear that Frobisher Bay is a preferred location to both Inuvik and Yellowknife because the total freight advantage is higher and the required volumes are lower. Other possible locations for a greenhouse are Rankin Inlet and Cambridge Bay. However, the size of the market in these two locations is relatively small and may not be able to justify the initial capital investment required.

As shown in Table 10, the production costs of the proposed greenhouse are almost double the current imported price of tomatoes and lettuce while the cost of production for cucumbers is only about 20% to 30% higher than the cost of imported cucumbers. As a result, for a local greenhouse to be viable, a considerable premium in price would have to be charged.

In summary, only greenhouses that are located close to an economical energy source such as waste hot water are likely to be viable. Greenhouses in communities that face high transportation costs would be more viable because prices of imported products would be higher. As a result, Iqaluit, Rankin Inlet and Cambridge Bay appear to be most capable of supporting greenhouse operations. However, detailed financial analysis as well as more in-depth sales revenue projections are required in order to assess the feasibility of establishing full-scale greenhouse operations at these locations.

3. Import Substitution Potential

If we assume that a greenhouse could capture 50% of the local market and that an average price of $1.00 per pound could be obtained for the greenhouse products, the value of vegetables that could be displaced are calculated below:

	Market Size (000's lbs.)	Greenhouse Sales Volume (000's lbs.)	Sales Revenue
Iqaluit	442	221	$221,000
Rankin Inlet	173 - 201	95	95,000
Cambridge Bay	76 - 87	40	40,000
Total	691 - 730	356	$356,000

As indicated, the total sales revenue of three proposed greenhouses would be approximately $356,000.

4. Recommended Development Strategy

On the basis of community size and transportation costs, Iqaluit appears to offer the greatest potential for a waste heat greenhouse. A detailed feasibility study should be conducted to determine the most appropriate greenhouse design, select the best location, analyze

the climatic conditions, and determine projected operating revenues and costs and capital costs. If the study results are positive, a full-scale test facility at a cost of about $400,000 should be established as a pilot project. The purpose of this project would be to obtain accurate production costs and to determine if greenhouse production should be undertaken in other parts of the N.W.T.

E. GAME RANCHING

Canadian Reindeer Ltd., located in Tuktoyaktuk, operates the only commercial reindeer herd in the N.W.T. It has the only registered establishment in the N.W.T. that meets the requirements of the Meat Inspection Act. The reindeer herd consists of some 15,000 head. The company harvests between 2,500 to 3,400 per year.

The Natural Resource Development Sub-Agreement provided assistance to assess the feasibility of a wood bison ranch in the Fort Smith area. However, this study has not yet been completed. The preliminary study results indicate that bison ranching is viable and should be encouraged in the N.W.T.

A summary of our findings and conclusions regarding the potential for game ranching in the N.W.T. are provided below:

1. Market Potential

As indicated in the feasibility study undertaken on behalf of the Inuvialuit Game Council, the demand for game meat in southern Canada and the U.S. is strong. The market for buffalo meat in Canada has grown considerably in the past decade and there are presently 10,000 plains bison on farms in Canada.

The demand for reindeer meat is especially strong and prices have peaked due to a shortage of supply. The supplies of reindeer meat have been reduced due to the nuclear contamination of reindeer herds in Finland resulting from the Chernobyl incident.

2. Opportunities and Constraints

Even though there probably exists an abundance of wildlife in the N.W.T., shortages could occur in the future due to increasing demand from growing populations in the N.W.T., increases in hunting/outfitting activity, and increases in the commercial sales of country foods.

Once the existing wildlife resources are fully utilized, the most appropriate course of action would be to supplement the supplies available from the wild population by encouraging game ranching in the N.W.T.

Game ranching is viable in southern Canada. However, it may not be viable in the N.W.T. due to high feed and transportation costs. Other constraints to game ranching in the N.W.T. are as follows:

a. Lack of land available for non-Natives due to land claims.

b. Competing land uses if the ranch restricts access by other wildlife.

c. Disease problems resulting from the interaction of domestic herds and wildlife.

d. Some wildlife populations such as caribou are difficult to domesticate because they cannot be herded.

e. Ranching is not politically acceptible because it is perceived by many to be in conflict with the traditional hunting culture.

f. Poaching could be a problem.

g. The existing wild buffalo herd in Buffalo National Park are contaminated with highly contagious diseases which a domestic herd could contract.

Some potential benefits, however, to be obtained from game ranching are as follows:

a. Provision of a consistent source of supply.

It will be difficult to organize and coordinate HTA's to supply muskox and caribou to central meat processing facilities that would produce game meat for local and export sales. The establishment of game ranching near meat processing facilities would reduce transportation costs and ensure a consistent source of supply which is a critical factor to the success of a meat processing operation.

b. Provide more consistent product sizes and quality.

It would be possible to obtain more uniform carcass sizes and cuts which are a critical purchasing criteria for restaurants.

c. Provide substantial economic benefits in terms of revenue and job creation to the N.W.T.

The animals most suited for game ranching in the N.W.T. are bison and reindeer as they have already been raised domestically in other parts of the world. Muskox is also a possibility, as it is currently raised domestically in Alaska. It is not feasible to consider domestication of caribou as this animal is migratory and cannot be herded.

3. Economic Viability

Preliminary study results of a bison ranching feasibility study indicate that approximately $2 million dollars would be required to establish a bison ranch of 1,000 animals. Of this total, about $1.5 million would be required for capital costs while $.5 million in working capital would be required.

Each bison carcass weighs about 600 pounds. At a price of about $6 per pound for dressed meat, an annual harvest of 300 animals would generate revenues in excess of $1 million per year.

Because the final study results are not available, it is not possible to ascertain the viability of a bison ranch in the N.W.T. Due to the high capital costs, however, it will likely require a considerable period of time to obtain a return on the initial investment.

4. Development Strategy

Game ranching is a high-risk capital-intensive industry. As a result, highest priority should first be devoted to increasing the commercial use of existing wild populations of muskox and caribou in the N.W.T. before game ranching is considered. The development of the game ranching industry, however, will require a long time period. As a result, the necessary feasibility studies and pilot projects should be undertaken now to plan for the orderly development of game ranching in the long term.

The development strategy required to increase the supply of game animals in the N.W.T. for commercial purposes is as follows:

a. Conduct a study to determine the feasibility of game ranching in the N.W.T. for other than bison ranching.

   The major species to be investigated are reindeer and muskox. The study should assess the most appropriate locations and methods of game ranching.

b. Provide government support and assistance to the existing reindeer farm in the N.W.T.

   The type of assistance required would be determined from the game ranching feasibility study but could include relocation to other sites in order to divide the herd into smaller groups. In addition, assistance may be required for hay production equipment and meat processing facilities.

TABLE 11

IMPORT DISPLACEMENT POTENTIAL FROM LOCAL FOOD PRODUCTION

	Activity	Potential N.W.T. Sales Revenue ($000's)
A.	Country Foods	$ 2,000
B.	Small-Scale Agriculture	
	Hog farms	670
	Market gardens	252
	Dairy farms	1,590
	Egg production	330
	Poultry farms	390
		3,232
C.	Greenhouses	
	Iqaluit, Rankin Inlet and Cambridge Bay	356
	Total	$ 5,588

Source: Don Ference & Associates Ltd.

F. SUMMARY

The food industry represents one of the greatest opportunities for import substitution in the N.W.T. The heavy reliance on imported food products implies a large potential market. Northern foods are both nutritious and of excellent quality. Foods produced locally, be they country foods harvested in Pangnirtung or vegetables grown in Hay River, enjoy a significant freight advantage which can help to offset other production constraints.

A summary of the potential imports that could be replaced by further development of the northern food industry, based on the opportunities described in the previous pages, is provided in Table 11 on the opposite page. As indicated, the value of imports that would be displaced are estimated to be approximately $5.6 million per year.

The two major methods to achieve this import substitution potential are to considerably expand small-scale agriculture activities in the Fort Smith region and to establish facilities for the processing and wholesaling of country foods throughout the N.W.T. In addition, the establishment of greenhouses should be investigated in more detail to determine if they can be viably established in eastern Arctic communities where there exists waste hot water from local power generating stations.

The likelihood, however, of realizing the import substitution opportunities identified is greatly constrained by the absence of a clear and consistent development strategy regarding country foods and northern agriculture. At this time, there are a number of government departments and programs involved in the development and regulation of the northern food industry including the Department of Economic Development and Tourism, Department of Renewable Resources, Department of Indian Affairs and Northern Development, Agriculture Canada, Department of Fisheries and Oceans, Economic Development Agreement, and Special ARDA.

These departments and programs do not act in concert and are not necessarily pursuing the same aims with respect to development. Indeed, there are examples where departmental objectives appear to be in conflict such as in the area of

game farming which could be supported by the Department of Economic Development on the basis of economic development potential and opposed by the Department of Renewable Resources because of potential conflicts with current uses of renewable resources. The absence of a clear policy engenders confusion and hesitation on the part of the private sector and funding agencies.

It is fundamental to the proper development of the northern foods industry that the various government departments and programs share a common vision of the development process. For this reason, we recommend the establishment of a Task Force on the Northern Food Industry. The objectives of the Task Force should be as follows:

- Construct a coherent development strategy for the northern foods industry;

- Communicate the development strategy to the relevant Federal and Territorial Government Departments and to private sector groups with a vested interest in the industry;

- Monitor the implementation of the strategy by government departments and the private sector.

A description of the composition and activities of the Task Force is described below:

1. Composition of the Task Force

The core of the task force should be comprised of senior officials of the Department of Economic Development and Tourism, Department of Renewable Resources, two or three key representatives from the private sector such as major grocery wholesalers and retailers in the N.W.T. and major country foods producers such as the IGC. The objective is to compose a team of individuals who not only have the technical expertise to devise an appropriate development strategy, but who also have the necessary authority and support to implement the policies developed.

Other participation in the Task Force should be solicited from Agriculture Canada, Department of Fisheries and Oceans, Freshwater Fish Marketing Corporation, the Economic Development Agreement Secretariat, Department of Regional Industrial Expansion, and Special ARDA. Other private sector contributors should include representatives from Native Development Corporations, Hunters and Trappers Associations, small-scale agriculturists, farmer and fishermen organizations, food processors, distributors and retailers.

2. Development Strategy

In order to construct a development strategy, it will be necessary to identify issues, solicit presentations and work towards a concensus. The objective for dealing with a particular issue (for example, target markets or availability of lands for large-scale agriculture) may not be to reach a decision or solution but rather to agree on a common approach. A list of some of the issues on which a consensus should be reached is provided below:

a. Policies for development of the following sectors:

- Country foods
- Small-scale agriculture
- Game farms
- Large-scale agriculture

b. Policies to Overcome Existing Constraints

- Availability of land
- Sustainable yields
- Trading infrastructure
- Availability of capital
- Availability of entrepreneurs
- Availability of skilled labour

- Flow of market information
- Consistency of supply
- Consistency of product quality
- Market demand
- Costs of production
- Competing uses for resources

c. Appropriate Market Focus

- Northern Native market
- Northern non-Native market
- Southern market
- International market

d. Design and Development of Processing and Distribution Infrastructure

- Harvesting programs
- Processing and storage facilities
- Meat inspection services
- Milk inspection services
- Transportation infrastructure
- Grading systems
- Training programs

e. Role of the Private Sector

- Country foods production
- Small-scale agriculture
- Other modes of production
- Distribution channels
- Promotion programs
- Financing

f. Role of Government Departments and Programs

- Funding
- Training
- Technical assistance
- Provision of facilities
- Product research and development
- Market research and development
- Grading systems and inspection capabilities
- Promotion
- Determination of sustainable yields

3. Output

The output of the Task Force should be a document outlining the development strategy for the northern foods industry. The document would be distributed to the various government departments, funding agencies and programs, task force participants, and interested parties in the private sector.

4. Implementation of Strategy

The core members of the task force would be entrusted with the responsibility of implementing the devised strategy. A mechanism should be included to monitor the implementation activities and report on the progress achieved on a semi-annual basis.

TABLE 12

NUMBER OF MANUFACTURING FIRMS IN THE N.W.T. IN 1986

Sector	Number of Employees						
	0	1 - 4	5 - 9	10 - 19	20 - 49	49 - 99	Total
Fish Products	-	-	-	-	1	-	1
Bakery Products	-	2	1	-	-	-	3
Miscellaneous Food	-	1	-	-	-	-	1
Beverage	-	-	1	-	-	-	1
Total	-	3	2	-	1	-	6
Carpet, Rug, Mat	-	-	-	1	-	-	1
Misc. Textile	-	-	1	-	-	-	1
Total	-	-	1	1	-	-	2
Men's Clothing	-	-	1	1	1	-	3
Women's Clothing	-	1	-	-	-	-	1
Fur Goods	-	1	-	-	-	-	1
Misc. Clothing	-	-	-	1	-	-	1
Total	-	2	1	2	1	-	6
Commercial Printing	-	1	3	-	1	-	5
Publishing	-	-	-	-	1	-	1
Printing & Publishing	-	1	1	1	-	-	2
Total	-	1	4	1	2	-	8
Aircraft parts	-	-	1	-	-	-	1
Boats, repair	-	-	1	-	-	1	2
Total	-	-	2	-	-	1	3
Sawmills	1	-	-		1	-	2
Concrete	-	1	1	-	-	-	2
Petroleum Refining	-	-	-	-	-	-	1
Household Furniture	-	1	-	-	-	-	1
Soap & Cleaning	-	1	-	-	-	-	1
Jewellery, Silverware	-	-	-	1	-	-	1
Miscellaneous	-	-	1	-	-	-	1
Total	1	3	2	2	1	0	9
Total	1	9	12	6	5	1	34

Source: Statistic Canada, Business Register, 1986.

V. MANUFACTURING

This chapter contains an overview of the manufacturing sector in the N.W.T. and an analysis of specific import substitution opportunities.

A. OVERVIEW

Manufacturing opportunities in the N.W.T. are based on either the value-added processing of exports or the production of local goods to replace those currently imported into the regions.

The supply of manufactured goods in the N.W.T. is almost entirely dominated by southern manufacturers and suppliers. As shown in Table 12, the available statistics indicate 34 manfacturing firms in the NWT at the end of 1986. By taking the average number of employees from each size category and multiplying it by the number of firms in that category, a total of 448 people were employed in manufacturing in 1986. There has, therefore, been little growth in this sector since 1981, when employment was approximately the same. Table 12 also indicates that, apart from oil refinery, the majority of manufacturers in the N.W.T. were involved in the consumer (clothing, furniture, food, jewellery), business support (printing and publishing), transportation and construction industries.

The manufacturing sector in the NWT is based primarily upon the local economy rather than the export market. With a total population of just over 50,000, the market for N.W.T. manufactured goods is modest. Of the manufacturing companies that responded to our survey, 57% indicated that the small size of the local market was the biggest constraint to realizing increased business.

TABLE 13

DEMAND FOR TANNED HIDES BY REGION IN N.W.T.

Area	Moose Hides	Caribou Hides	Total
Great Slave Lake	175	197	372
MacKenzie River	13	10	23
MacKenzie Delta	18	0	18
Western Arctic	20	40	60
Eastern Arctic	-	-	-
Keewatin	-	-	-
Total	226	247	473

Source: Tanning Hides and Furs in the N.W.T.

The following sections contain a description of the manufacturing opportunities that would result in the displacement of manufactured goods currently imported from southern Canada.

B. FUR GOODS

Almost all of the fur harvested in the N.W.T. is shipped to southern Canada for sale or for further processing (e.g., tanning). At the same time, the arts and crafts industry in the N.W.T. has been importing tanned leather and fur products from southern Canada. As a result, there appears to exist an opportunity to establish fur manufacturing facilities in the north to replace the products currently imported. A description of some specific opportunities based on the substitution of fur products is provided below:

1. Small Scale Tanneries

The recent study entitled Tanning Hides and Furs in the N.W.T. concluded that a very small tannery utilizing traditional techniques to produce smoked tanned hides is viable while a larger tannery would not be viable due to the lack of sufficient markets in northern Canada.

a. Market Potential

As indicated in Table 13, the demand for smoked tanned hides by arts and crafts associations in the N.W.T. is estimated to be a total 226 moose hides and 247 caribou hides. The greatest demand exists in the Great Slave Lake area which accounts for almost 80% of the total market. The figures provided in Table 13 do not include hides that could be marketed to larger companies such as the Hudson's Bay Company, Arctic Trading Company and Northern Impressions.

TABLE 14

PRO FORMA INCOME STATEMENT
VERY SMALL TANNERY

	Start Up	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Revenue	$ -	$ 33,600	$ 63,000	$ 84,000	$ 84,000	$ 84,000	$ 84,000	$ 84,000
Expenses								
Rent	-	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 6,000
Utilities	-	2,000	3,050	3,050	3,050	3,050	3,050	3,050
Cost of Hides	-	6,000	10,000	12,000	12,000	12,000	12,000	12,000
Cost of Stock	-	600	1,000	1,200	1,200	1,200	1,200	1,200
Interest	-	2,580	2,580	2,580	2,580	2,580	2,580	2,580
Maintenance	-	350	350	350	350	350	350	350
Water	-	50	100	144	144	144	144	144
Labour Trainee	-	16,640	16,640	16,640	16,640	16,640	16,640	16,640
Labour Tanner	$ 5,000	31,200	31,200	31,200	31,200	31,200	31,200	31,200
Labour Helper		-	1,280	1,280	1,280	1,280	1,280	1,280
Total Costs	$ 5,000	$ 65,420	$ 72,200	$ 74,444	$ 74,444	$ 74,444	$ 74,444	$ 74,444
Profit (Loss)	($5,000)	($31,820)	($9,200)	$ 9,556	$ 9,556	$ 9,556	$ 9,556	$ 9,556
Cumulative Profit (Loss)	($5,000)	($36,820)	($46,020)	($36,464)	($26,908)	($17,352)	($7,796)	($1,760)

Source: Tanning Hides and Furs in the N.W.T.

The major customer for smoked hides would be the N.W.T. arts and crafts industry. This market is currently supplied by tanneries in B.C. and Native women in the N.W.T. Some hides have also been obtained from Alberta. However, Alberta has recently banned interprovincial trade in moosehides, providing an opportunity for a local tannery to replace this source of supply.

b. Economic Viability

Based on an average price of $350 for a smoked tanned hide, the potential revenue of a tannery is estimated to be $84,000 assuming an annual production of 240 hides per year. The operation is projected to show a profit of about $9,500 by the third year of operation. Due to operating losses in the first two years, a cumulative profit is not realized until after the seventh year of operation as shown in Table 14. Furthermore, the financial projections do not include provisions for material spoilage, low productivity due to unexperienced labour or any marketing expenses. As a result, the operation appears marginal.

c. Constraints

Some of the major constraints to establishing a very small tannery are as follows:

1. Local labour would first have to be trained in traditional moose tanning methods.

2. There may exist difficulties in capturing the entire market for smoked tanned moose hides in the N.W.T. which may reduce the viability of the operation.

3. It will be necessary to train hunters to skin hides properly so that high quality raw materials can be obtained.

d. Development Strategy

Support should be provided for the establishment of a very small tannery in the Fort Smith region as a test project. The preferred location is Rae Edzo because it is close to major centres of demand, is located near the major supply of moose hides, and has a large and active pool of talent among the native population.

A study should also be undertaken to investigate the market demand and feasibility of establishing a tannery in the Inuvik region that would be based on muskox and caribou which would be killed for the production of qiviut and country foods. If the study results are positive, assistance should also be provided to construct a tannery in the Inuvik region.

2. Fur Dressing Plant

The study entitled Tanning Hides and Furs in the N.W.T. indicated that a custom fur dressing plant would be viable in the N.W.T. The major findings of the study are summarized below:

a. Market Potential

The proposed output of a fur dressing plant is approximately 9,000 pelts per year. The feasibility study identified 12 different species that would account for the majority of production of the fur dressing plant, including bear, beaver, coyote, fox, lynx, marten, wolf, wolverine and seal pelts. These pelts would be dressed on a custom basis.

TABLE 15

SHARE OF TOTAL FUR PRODUCTION THAT WOULD BE UTILIZED BY FUR PROCESSING PLANT IN EACH REGION OF N.W.T.

Region	Total Number of Pelts Produced	Fur Processing Plant Output	Share of Total Harvest
Inuvik	131,377	9,000	6.9%
Fort Smith	52,916	9,000	17.0%
Kitikmeot	9,815	9,000	91.8%
Keewatin	2,110	9,000	100.0%
Baffin	3,319	9,000	100.0%
Total	184,358	9,000	4.5%

Source: G.N.W.T., Department of Renewable Resources

The total number of pelts of the 12 species harvested in the N.W.T. is indicated in Table 15 as well as the market share that would have to be achieved in order to secure 9,000 pelts. As indicated, there appears to exist only sufficient pelts in the Inuvik and Fort Smith regions to establish a fur dressing plant. If demand for sealskin increases, however, a fur dressing plant in the eastern Arctic may also be justified.

N.W.T. fur dressing plants would be in direct competition with established southern plants. The demand generated by craft stores in the N.W.T. is not sufficient to justify a fur dressing plant. As shown in Table 16, the total volume of dressed furs used by arts and crafts in the N.W.T. is only 4,528 pelts. As a result, most of the business of the fur dressing plants will have to come from larger users of furs, such as the Hudsons' Bay Company and the Arctic Trading Company. This market may be very difficult to penetrate.

Other potential markets for the fur dressing plant are the fox farms in the N.W.T. and custom tanning for southern sport hunters.

b. Economic Viability

Based on an EDA feasibility study, the projected revenues by the third year of operation are $180,000. The fur dressing plant is projected to achieve a cumulative profit by the fifth year of operation as shown in Table 17. However, the sales revenue projections may be optimistic if business cannot be obtained from larger users of furs such as the Hudson's Bay Company or the Arctic Trading Company.

TABLE 16

DEMAND FOR FURS IN THE N.W.T.
BY REGION IN 1985

Type	Area						
	Great Slave Lake	MacKenzie River	MacKenzie Delta	Western Arctic	Eastern Arctic	Keewatin	Total
Beaver	305	-	50	-	-	-	355
Coyote	100	-	50	50	3	50	253
Fox	230	-	-	75	20	50	365
Muskox	60	-	-	-	-	-	60
Rabbit	870	-	750	7	-	-	1,620
Seal	-	-	-	500	-	-	500
Wolverine	5	-	50	25	-	50	130
Wolf	285	-	-	75	-	-	360
Other	625	-	100	100	-	50	862
Total	2,480	-	1,000	825	23	200	4,528

Source: Tanning Hides and Furs in the N.W.T.

c. Constraints

The constraints to the establishment of fur dressing plants are as follows:

1. Substantial marketing effort would be required to achieve a sufficient market share. The feasibility study does not provide for marketing expenses in the financial projections.

2. There exists a lack of locally available skilled labour. Extensive training programs would be required to train the necessary personnel.

3. Substantial investment capital is required.

d. Development Strategy

Assistance should be provided to first set up one fur dressing plant in the N.W.T. as a test project. The preferred location is the Fort Smith or Inuvik region because the majority of furs are harvested in these regions. Locations in the Fort Smith region such as Hay River are preferable because of the following factors:

1. Better transportation infrastructure.

2. Lower transportation costs for supplies such as chemicals.

3. Existence of local fur farm which could be a potential customer.

TABLE 17

PRO FORMA INCOME STATEMENT
FUR DRESSING PLANT

	Start Up	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Revenue	$ -	$ 67,500	$121,500	$150,000	$180,000	$180,000	$180,000	$180,000
Expenses								
Chemicals	-	$ 6,600	$ 9,625	$ 11,000	$ 13,200	$ 13,200	$ 13,200	$ 13,200
Cost of Stock	-	550	802	916	1,100	1,100	1,100	1,100
Utilities	-	8,000	10,000	11,000	12,000	12,000	12,000	12,000
Insurance	-	2,900	2,900	2,900	2,900	2,900	2,900	2,900
Interest	-	34,000	34,000	34,000	34,000	34,000	34,000	34,000
Maintenance	-	1,200	1,800	2,000	2,400	2,400	2,400	2,400
Water	-	180	270	300	360	360	360	360
Labour Trainee	-	16,640	16,640	16,640	16,640	16,640	16,640	16,640
Labour Flesher	$ 2,500	15,600	20,800	20,800	20,800	20,800	20,800	20,800
Labour Tanner	$ 15,000	31,200	31,200	31,200	31,200	31,200	31,200	31,200
Labour Helper	-	-	8,320	8,320	8,320	8,320	8,320	8,320
Total Costs	$ 17,500	$116,870	$136,357	$139,077	$142,920	$142,920	$142,920	$142,920
Profit (Loss)	($17,500)	($49,370)	($14,857)	$10,923	$37,080	$37,080	$37,080	$37,080
Cumulative Profit (Loss)	($17,500)	($66,870)	($81,727)	($70,804)	($33,724)	$3,356	$40,436	$77,516

Source: Tanning Hides and Furs in the N.W.T.

The Inuvik region would be the preferred location if a market is secured for muskox hides and if it is feasible to process the hides locally.

3. Fur Apparel Manufacturers

The last fur apparel manufacturer in the N.W.T. was Delta Furs which ceased operating in 1985. A study was recently conducted by Don Ference & Associates Ltd. to assess the feasibility of Dionne Furs establishing a fur goods manufacturing facility in Eskimo Point.

The study results indicated that a fur garment plant was not feasible. The proposed project would experience cumulative operating losses of $882,100 in the first four years of operation and a small profit of $20,700 in the fifth year. The major constraints of a fur garment manufacturing plant are as follows:

a. The capital costs are high, amounting to $920,000.

b. There are few skilled craftsmen in the N.W.T. and extensive training would have to be undertaken to build a labour pool.

c. Considerable management expertise is required, especially in the buying and selling of furs.

d. Because there are no tanneries in the N.W.T., furs would have to be obtained from southern Canada.

e. It would be cheaper to sub-contract the manufacturing of fur garments to southern Canada due to lower wage and other operating costs as well as economies of scale.

f. Fur coats are a high fashion item and considerable contact with the retail fashion market is required in order to keep abreast of the latest designs. This is difficult to do in northern Canada.

TABLE 18

FUR ITEMS THAT COULD BE PRODUCED IN N.W.T.

- knitted fur sweaters
- knitted muskox sweaters
- knitted fur hats
- knitted fur scarves
- baby and kids fur trimmed clothing
- baby mitts and slippers (fur trimmed)
- fur pillows (scraps)
- fur pillow kits
- fur wall hangings (scraps)
- fur wall hanging kits
- fur toys and pins
- fur insects (northern souvenirs)
- antler buttons
- fur mitts and gauntlets
- fur hats, trapper style (R.C.M.P., Post Office, U.S. market)
- fur mukluks (leather and fur)
- seal mukluks
- fur trimmed slippers
- fur trimmed mitts
- fur knitted leg warmers
- fur bedspreads
- white fox vests
- fur ear muffs
- pre-made fur parka trims, tails
- fur piece decorator rugs
- fur rug kits
- fur flowers (mink pins)
- fur key chains
- polar bear hair pieces
- polar bear hansk for fly tiers
- supply taxidermists whole frozen animals
- antler jewellry
- caribou and moose hair tufting, incorporated into fur products

Source: N.W.T. Fur Symposium

In summary, a fur garment manufacturing plant does not appear viable at this time in the Arctic. The viability of such an operation could be improved if a local tannery were established, thereby eliminating transportation costs to ship furs from southern Canada. Therefore, we feel that the establishment of a fur garment manufacturing facility should be delayed until there exists a greater infrastructure in the N.W.T.

The findings from the N.W.T. Fur Symposium also concurred that the manufacturing of fur coats is not feasible in the north. However, the manufacturing of accessory fur products is viable and can be done in small communities in a cottage craft environment. The items that were suggested as having market potential are listed in Table 18. A feasibility study should be undertaken to determine the actual market potential for each of these items. If viable, assistance should be provided to develop a cottage craft industry based on fur accessories. These fur accessories would be produced for both local and export markets.

C. CONSTRUCTION MATERIALS

The construction industry in the N.W.T. has developed rapidly over the last decade. However, most construction materials are still brought in from southern Canada. As shown in Table 12, only a few sawmills and two ready-mix concrete plants are directly involved in manufacturing materials in the N.W.T. for the construction industry.

A description of specific business opportunities that would result in displacement of construction materials currently imported from southern Canada is provided below:

1. Sheet Metal Manufacturing

a. Market Potential

The demand for sheet metal products in the N.W.T. is influenced by several factors, the most significant of which is

commercial, institutional and industrial construction activity. Sheet metal products used in the N.W.T. include heating and ventilation ducts and piping, metal roofs, flashing and siding. In a recent study entitled "A Feasibility Study into the Expansion of Territorial Sheet Metal", the total size of the market for sheet metal products was projected to be about $2.1 million in 1987.

Territorial Sheet Metal in Yellowknife has just recently initiated the manufacturing of sheet metal products for the western N.W.T. The company projects a 12% share of the market by the end of 1987. As shown below, the company's projected sales revenue in 1987 is $251,600:

INCOME STATEMENT

	1986	1987
Revenue	$ 225,610	$ 251,600
Cost of Sales	157,900	176,120
Gross Margin	67,710	75,480
Expenses	64,074	60,385
Income Taxes	363	1,509
Net Income after Tax	$ 3,273	$ 13,586

Source: "A Feasibility Study into the Expansion of Territorial Sheet Metal", 1985.

The proposed operation appears viable as a profit of $13,586 is projected by the end of the 1987 fiscal year. The initial investment required for production equipment and machinery would total $120,000.

TABLE 19

CONSUMPTION OF LUMBER IN N.W.T.
BY MARKET REGION, 1983-84
(THOUSAND BOARD FEET)

Area	Lumber distributed via Hay River	Lumber distributed via Inuvik	Lumber used by gas and oil industry (M fbm)	Private	Total	%
Fort Smith	851	N/A	N/A	600	1,451	5.3%
Hay River	1,605	N/A	N/A	1,320	2,925	10.8
Fort Simpson	850	N/A	300	-	1,150	4.2
Yellowknife	2,685	N/A	700	1,823	5,208	19.2
Norman Wells	1,570	300	1,500	-	3,370	12.4
Inuvik and the Eastern Arctic	4,241	5,900	2,600	300	13,041	48.1
Total	11,802	6,200	5,100	4,043	27,145	100.0%

Source: NOFRC lumber industry survey, 1984.

c. Import Substitution Potential

Since Territorial Sheet Metal is currently projecting to capture less than 15% of the total sheet metal market, there exists potential to considerably expand sheet metal manufacturing in the north. The existing operation could be expanded considerably and additional manufacturing operations could possibly be established. If 50% of the sheet metal market were captured by local manufacturers, the value of imported sheet metal products that would be displaced from southern Canada would be approximately $1.05 million.

d. Development Strategy

Once the Territorial Sheet Metal manufacturing operation becomes established and demonstrates its viability, the further expansion of sheet metal manufacturing should be investigated. A study should also be undertaken to assess the feasibility of expanding the existing operations to include the manufacture of metal siding and roofing.

2. Sawmills

a. Market Analysis

The total market for lumber in the N.W.T. in 1983-84 is estimated to be 27.1 million board feet. A breakdown of lumber consumption by region and type of user is provided in Table 19. As indicated, Inuvik and the Eastern Arctic accounted for the consumption of 13,041 million board feet, or 48.1% of the total demand.

TABLE 20

SOURCES OF N.W.T. LUMBER IMPORTS
IN 1983 - 1984
(M fbm)

	Alberta	B.C.	Yukon	Total
Wholesalers	13,660	5,900	N/A	19,560
Retailers	325	327	560	1,212
Sawmills	705	560	200	1,465
Total	14,690	6,787	760	22,237

Source: NUFRC Lumber Industry Survey

In 1983/84, domestic production of lumber was 5.5 million board feet. As a result, local sawmills in the N.W.T. supplied about one-fifth of the total market demand in the N.W.T. The balance was imported from outside the N.W.T. As shown in Table 20, approximately 14.7 million board feet were imported from Alberta while most of the remaining imports came from B.C.

Lumber wholesalers accounted for 19.56 million board feet or 88% of the total lumber imported into the N.W.T. A small amount of lumber was also brought in directly by retailers or sawmills.

The lumber imported from Alberta is shipped to the N.W.T. via the MacKenzie Highway. Because the transportation costs are high, N.W.T. sawmills are in a position to displace these imports and increase market share.

The opportunities to displace imports from B.C. are more limited because of a builder preference for the superior construction characteristics of B.C. lumber. Opportunities for displacing imports in the Inuvik region are also limited by the high costs of transporting N.W.T. lumber from the Fort Smith region.

The market potential for N.W.T. forest products is summarized below:

There exists potential in the short term to increase the annual volume that could be sold in the Northwest Territories by about 5 million board feet.

In the longer term, a considerable proportion of the 14.7 million board feet of lumber from Alberta could be replaced. It would be overly optimistic, however, to assume that local mills can capture all of this market in the short term. The history of mills in the Territories has been characterized by uncertain quality and reliability. There will therefore be some initial hesitancy on the part of buyers despite the strong bias to utilize domestic supply sources.

TABLE 21

INCOME PROJECTIONS
LIARD VALLEY SAWMILL

	Phase of Operation		
	Development	Growth	Maturity
Duration of Phase (Months)	12	12	78
Revenue			
Lumber Sales	$677,798	$813,729	$1,355,513
Firewood Sales	16,000	16,000	16,000
Total Revenue	$693,798	$829,729	$1,371,513
Operating Costs			
Logging	$264,757	$346,257	$ 506,322
Sawmilling	304,830	351,987	585,609
Financing	-	-	-
Total Operating Costs	$569,586	$698,244	$1,091,931
Net Income	$124,212	$131,485	$ 279,582

Source: A Strategic Plan for the Forestry Development in the Lower Liard Area.

In summary, it appears that there exists sufficient market potential to justify the establishment of additional sawmill capacity in the N.W.T. The most preferred location is in the Liard Valley where there exists a considerable supply of underutilized timber resources. Due to uncertainity about timber resources in other parts of the Fort Smith region, it does not appear that substantial expansion of existing sawmills is warranted.

b. Economic Viability

The capital costs to establish a sawmill in the Liard Valley, capable of producing 5.2 million board feet of lumber, are estimated to be about $4.0 million. An analysis of the economic viability of a major sawmill in the Liard Valley is provided in Table 21. As indicated, the total revenues are estimated to be about $1.3 million based on the production of 5.2 million board feet at a price of $250 per Mfbm.

At maturity, the net profit before interest expenses is $279,982. As a result, the project does not appear viable if conventional bank financing is employed. Even with a grant of $2 million and the balance consisting of bank financing at an interest rate of 12.5%, the operation would incur a cumulative loss of about $579,000 during the first ten years of operation. As a result, the project does not appear viable based on conventional ratios. Some alternatives that would improve the viability of the sawmill are the purchase of used equipment and an increase in projected sales volume. Further analysis is required, therefore, to determine a method of improving the viability of the proposed sawmill before the project is viable and should proceed.

c. Constraints

The major constraints faced by the sawmill industry in the N.W.T. are as follows:

1. Small and limited market.

2. Restricted channels of distribution.

3. Short logging, shipping and construction seasons.

4. Overmature timber containing a high proportion of shake.

5. Shortage of skilled labour and management expertise in the forestry sector.

6. Restricted long-term planning due to the absence of a forest management policy.

   A forest management policy, however, is currently being prepared by G.N.W.T. Renewable Resources.

7. Out of date and inaccurate inventory data which makes it difficult to make accurate resource allocation decisions.

8. Absence of silviculture programs constraining long-term productivity of the N.W.T. forest resources.

9. Pending land claims which limit development of the forestry sector.

   It is difficult for the private sector to consider additional investments because the settlement of the land claims could limit further harvesting of the forest resources.

d. Development Strategy

The steps required to further develop the N.W.T. forest sector, in order of priority, are as follows:

1. Highest priority should be placed on developing the forest resources in the Liard area.

   A more in-depth feasibility study is required to determine how a viable operation can be established. The factors that should be investigated include increasing the production volume to greater than 5 million board feet per year. To do so, however, in-depth market research is required to determine the extent to which local mills can actually replace imported lumber.

2. Contingent upon the results of the study, support should be provided for the construction of a sawmill in the Liard Valley.

3. Lower priority should be placed on increasing the production capacity of the existing mills in the Fort Smith area.

   There already exists excess production capacity by the sawmills in the Fort Smith area. Furthermore, until existing inventory data is updated, it is not certain that the forest resources are capable of supporting increased production levels.

   Some inventory assessment studies should be undertaken in order to accurately assess the amount of timber resources available and the appropriate production levels for the existing sawmills and to enable long-term planning

TABLE 22

POTENTIAL MARKET IN 1986 FOR N.W.T. WOODWORKING FACILITY

Product	Estimated Market Size
Doors and Windows	
Social Housing	$ 280,000
Government/Private Housing	657,000
Pallets	65,000
Core Boxes	250,000
Trusses	320,000
Total	$1,572,000

Source: Hay River Dene Band, Economic Feasibility of a Woodworking Facility, Revised, 1986.

by these mills. In addition, management training and capital assistance for upgrading and modernization should be provided to increase the viability of the existing sawmill operations.

4. Low priority should also be placed on developing the forest resources in the Inuvik region.

The infrastructure and access costs that would have to be incurred to develop these resources are high. Furthermore, the size of the trees are small, thereby making the operation less economical.

3. Woodworking

There are no woodworking facilities in operation in the N.W.T. However, interest has been expressed by several parties including the Hay River Dene Band and Igloo Building Supplies Ltd., which is a major distributor of wood products in the N.W.T. A feasibility study of a woodworking facility in Hay River was funded by EDA on behalf of the Hay River Dene Band. The study results are summarized below.

a. Market Potential

Table 22 indicates the size of the market in the N.W.T. for doors, windows, pallets, boxes and trusses. As indicated, the potential market of the proposed woodworking facility is estimated to be approximately $1.57 million in 1986. annually. Strong competition would be faced from the large established manufacturers in western Canada that currently export into the N.W.T. Based on the market research undertaken, a local woodworking facility could capture about 50% of the total N.W.T. market and achieve total sales revenues of about $700,000 per year.

TABLE 23

N.W.T. WOODWORKING FACILITY
TEN YEAR FINANCIAL PROJECTIONS
($000)

	Year					
	1	2	3	4	5	10
Sales Revenue	$ 237	$ 505	$ 594	$ 698	$ 698	$ 698
Variable Costs	224	338	372	429	429	429
Indirect Costs	165	165	165	165	165	165
Depreciation and Interest	106	105	103	101	99	83
Total Costs	495	608	640	695	693	677
Net Income before subsidy	(258)	(103)	(46)	3	5	21
Training Subsidy	100	-	-	-	-	-
Net Income	$ (158)	$ (103)	$ (46)	$ 3	$ 5	$ 21
Cumulative Income	$ (158)	$ (261)	$ (307)	$ (304)	$ (299)	$ (233)

Source: Hay River Dene Band, Economic Feasibility of a Woodworking Facility, Revised, 1986.

b. Capital Costs

The capital costs to establish a N.W.T. woodworking facility are estimated to be $804,000. A futher $686,000 was projected to be required to cover working capital requirements and pre-operating costs resulting in a total investment of about $1.5 million. The Fort Smith region is the most appropriate location for the facility because of its proximity to lumber and to the largest markets in the N.W.T.

c. Constraints

The primary constraints are the small size of the local market, the strong competition that would be faced from southern manufacturers, and the need for specialized labour skills.

d. Economic Viability

Table 23 on the opposite page illustrates the projected profit and loss of the proposed woodworking facility for the first ten years of operation based on a 50% share of the market in the N.W.T. As indicated, profit is not generated until the fourth year of operations and a cumulative deficit of $233,000 accrues by the end of the tenth year.

Production of doors and door frames would provide a negative contribution (excess of product costs over revenues), while the remainder of products would provide a positive contribution ranging from 29% for trusses, 40% for windows, 55% for pallets and 58% for core boxes.

e. Recommended Development Strategy

Based upon on a preliminary economic analysis, a woodworking facility of the type proposed by the Hay River Dene Band does not appear feasible. Even at a market share of 50% which would be

TABLE 24

VOLUME OF SELECTED FOOD ITEMS IMPORTED BY TRUCKING FROM PROVINCES AND TERRITORIES TO THE N.W.T IN 1985

(tonnes)

Item	Source								
	Yukon	B.C.	Alta.	Sask.	Man.	Ont.	Que.	Total	%
Meat-	-	9	1,408	1	1	-	-	1,819	8.7%
Dairy Products and Eggs-	-	-	442	-	1	-	-	443	2.1
Cereal Grains-	-	1	195	-	1	-	-	197	0.9
Fruits-	-	-	84	-	-	-	-	84	0.4
Vegetables-	-	-	112	-	-	-	-	112	0.5
Coffee, Tea, and Spices-	-	1	-	-	-	-	-	1	-
Other Food	351	472	6,294	-	1	1	6	7,125	34.2
Beverages	98	-	11,371	-	-	-	-	11,469	55.0
Total	449	483	19,906	1	4	1	6	20,850	100.0%

Source: Statistics Canada, Special Request

difficult to achieve, the operation would not pay back the initial investment. However, the viability of a woodworking facility would be improved if:

i. It were established adjacent to an existing sawmill or other type of facility where buildings and land would not be required.

ii. If it produced prefabricated walls and floors as components for prefabricated residential housing. This market segment has not been examined but holds considerable potential. As an illustration, a total of 5,150 public housing units are required over the next ten years in the N.W.T. as shown below:

PUBLIC HOUSING REQUIREMENTS
1986 - 1996

Region	Number of Houses Required
West and Central	3,750
Keewatin	700
Baffin	700
Total	5,150

As a result, further investigation should be undertaken to determine the feasibility of expanding the proposed workworking facility to include prefabricated walls and floors such that complete housing packages could be supplied to N.W.T. communities. These housing packages would be shipped and assembled on site.

D. FOOD PROCESSING

In addition to the production of foods, there exist import substitution opportunities in the processing of food products. Beverages, for example, accounted for 55% of the total weight of food products imported into the N.W.T. in 1985 as shown in Table 24. Some specific food processing import substitution opportunities are described below:

1. Brewery Pubs

The N.W.T. consumed more than 4 million litres of beer in 1985. Yet, beer is not produced in the N.W.T. but is supplied primarily from Alberta-based national breweries. The import substitution opportunities, therefore, are considerable.

The brewing of beer requires only water, malt, hops, and cereal flakes. Large-scale production further requires quantities of sugars, phosphoric acid and sulphuric acid. Only the water, the key brewing ingredient, would be available from within the N.W.T. while the other raw materials would have to be shipped from southern Canada.

a. Market Potential

More than 50% of the beer sold in Canada is consumed by males in the 18-25 age group. Sales of beer have slowed in recent years as the population in the 18-25 age group shrinks. In the N.W.T., however, 34.7% of the population is under the age of 15, and approximately 50% of the population is under the age of 20. These statistics indicate that above average growth in the 18-25 age group in the next decade will result in an above average growth in the consumption of beer in the N.W.T.

In the N.W.T., 1985 sales of beer were 4.3 million litres, a 4.4% increase over 1984 sales volume of 4.1 million litres. Total sales revenue figures for the N.W.T. for 1984 and 1985 were $9.8 million and $10.9 million, respectively. According to N.W.T. Liquor

Commission statistics, 38% of beer sales derive from Yellowknife, 15% from Inuvik, 13% from Hay River, 6% from Fort Smith, and around 5% each from Fort Simpson and Pine Point. The remainder of sales are obtained from communities in the eastern Arctic.

Competition in the beer market is intense. The N.W.T. market is split amongst the three national brewers who undertake advertising and promotion campaigns costing millions of dollars. Gaining market share is extremely difficult. A 2% to 4% share of the local market is considered a reasonable and attainable goal for a new, small brewing operation.

b. Viability

The initial equipment required for a brew pub in the N.W.T. would be approximately $145,000 as shown below:

BREWHOUSE EQUIPMENT COSTS

Fermenter, conditioning tanks, etc. (82,000 litres/year capacity)	$110,000
Bottler	10,000
Keg filler and washer	5,000
Supplies (bottles, kegs, etc.)	20,000
Total Equipment and Supplies Cost	$145,000

Source: Cask Brewing Ltd., 1987

A brew pub of this size, if it were to operate at capacity, would have to capture only 2% of the N.W.T. beer market to realize annual sales in the range of $250,000. Significant transportation cost savings would allow a brew pub to competitively price its product to other licensees or to its own customers.

A pre-feasibility study of a northern Canadian brewery conducted for Alberta Tourism and Small Business concluded that one or several brew pubs could prove feasible in the northern Alberta market. The same can be said for the N.W.T. market. By establishing brew pubs in existing bars in the N.W.T., southern beer would be displaced. Readily available markets, labour and supplies, therefore, make a brew pub operation an excellent import substitution candidate.

The two areas that appear most appropriate for the establishment of brew pubs are Yellowknife, because it is the largest urban area in the Territories, and the southern Great Slave Lake area comprising Fort Simpson, Hay River, Fort Smith and Pine Point which consumes 30% of the beer in the N.W.T. Brew pubs have been profitable in markets of such size.

c. Constraints

The major constraint to a successful brew pub is government agency approval. Policies would have to be developed to allow brew pubs to be established in the N.W.T.

d. Development Strategy

A detailed feasibility study of establishing brew pubs in the N.W.T.should be undertaken. If feasible, government support for the establishment of a number of brew pubs should be provided. If 10% of the beer market were captured, the value of imported beer that could be displaced would be approximately $1.1 million per year.

2. Cottage Brewery

The brewery pre-feasibility study conducted for Alberta Tourism and Small Business determined that while a brew pub would be feasible for the northern Alberta market, a cottage brewery would not. The analysis used in the northern Alberta study can be applied to the N.W.T. market because of the similarity in demographics and logistics between the two regions.

A cottage brewery is a very capital-intensive operation. Cost estimates range between $2 million to $3 million depending upon the volume of production. Production volumes would have to be in the range of 1.13 million litres annually to break even and this would require a 25% share of the current N.W.T. market. The transportation problems in the north would make penetration of the N.W.T. market difficult. For instance, attaining a 25% market share in the N.W.T. would necessitate distribution to almost all areas of the north, at all times of the year, and at competitive prices. For a cottage brewery in the north that was producing an unpasteurized product, this would prove difficult to perform. A cottage brewery operation in the north would not enjoy the local market advantages that make a brew pub feasible, but would be forced into direct competition with the three national breweries. In addition, it would be difficult to attract qualified and skilled personnel (e.g., a certified brewmaster). A much more detailed feasibility assessment is required, therefore, before support for a cottage brewery in the N.W.T. can be provided.

3. Soft Drink Bottler

Most soft drinks are currently bottled and shipped from southern Canada. Based on our interviews, there exists a need for improved supply of soft drinks, particularly in the Eastern Arctic where transportation constraints can interfere with distribution. One alternative to improving the amount and timing of soft drink supplies is to establish a local bottling facility to replace imports.

The only bottler of soft drinks in the N.W.T., the Coca-Cola distributor in Yellowknife, has just recently discontinued its bottling capabilities and become a distributor only. The high cost of upgrading old equipment, of obtaining parts and of investing in new equipment made it infeasible to continue bottling soft drinks.

Other soft drink franchises, such as the Pop Shoppe, have attempted to establish themselves in the N.W.T. but these efforts have not succeeded. The distribution network for Coke and Pepsi in the Western N.W.T. is well developed and difficult to penetrate.

Because the total population of the Western N.W.T. was not able to justify the continuation of a bottling facility in Yellowknife, an operation in any other town in the N.W.T. would not prove feasible. It is unlikely, therefore, that a bottling facility would prove feasible in the Baffin region. The population is too small. The recent supply shortage problems experienced in Baffin point more to a need for better planning and scheduling of soft drink shipments than to the need for a local bottling plant.

4. Meat Processing Plants

The establishment of a country foods operation and local chicken farms will create the need for a number of meat processing plants in the N.W.T. These meat processing plants will have to both slaughter the animals as well as cut the carcasses into retail size cuts. The meat cuts will then have to be packaged and sold to the existing retail grocery store network throughout the N.W.T. The development strategy for the meat processing sector is contained in the previous chapter and indicates the specific projects, constraints and opportunities and feasibility of the proposed projects.

E. COMMUNICATIONS

The production of communication products is a growth industry. Some opportunities for import substitution in the communications industry in the N.W.T. are described below:

1. Printing and Publishing

As shown in Table 5, our survey of private sector businesses in the N.W.T. indicated that only 28.3% of office supplies were purchased from northern firms. The government sector purchased 48% of their office supplies from southern firms. Many purchasers utilized northern firms for basic office supplies, but specialty products, such as office letterhead and individualized restaurant and hotel cheques, were purchased predominantly in the south.

There were 8 registered printing and publishing firms in the N.W.T. at the end of 1986. According to a recent study entitled Feasibility of Establishing a Joint Venture Publishing Operation in the Eastern Arctic, the total market in the

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& ASSOCIATES LTD.

TABLE 25

PRO-FORMA STATEMENT OF INCOME
PROPOSED VIDEO PRODUCTION COMPANY
IN THE N.W.T.

	Year 1	Year 2	Year 3
Revenue			
Contract	$ 310,000	$ 387,500	$ 503,750
Miscellaneous	50,000	57,500	69,000
	360,000	445,000	572,750
Expenditures			
Adver. & Promo.	3,600	4,450	5,728
Bank Charges	1,080	1,335	1,718
Depreciation	34,500	62,350	50,355
Insurance	4,500	4,950	5,445
Interest - Ltd.	21,252	20,164	19,077
Materials	62,000	77,500	100,750
Office Exp.	5,400	6,675	8,591
Professional Fees	4,000	4,400	4,752
Rent	22,500	22,500	22,500
Repair & Maint.	4,320	5,340	6,873
Travel	46,500	51,150	56,265
Wages & Benefits	260,700	273,735	295,634
	470,352	534,549	577,688
Net Income	$ (110,352)	$ (89,549)	$ (4,938)

Source: N.W.T. Video Feasibility Study

N.W.T. for printing and publishing is estimated to be about $15 million. The study indicated that there existed considerable market potential for the establishment of an additional printing and publishing capacity in the N.W.T. If local companies were to obtain an additional 5% of the market, incremental sales revenues would be $750,000.

Government support and grants should be provided to establish additional printing and publishing companies in the N.W.T. More in-depth site-specific feasibility studies should be conducted, however, before government assistance is provided.

2. Video Production

A recent feasibility study of establishing a video production company in the N.W.T. concluded that there existed a market for the production of videos. The initial focus should be to provide education and training videos primarily for government departments. Other potential markets are resource companies, cable and T.V. stations, and local Native organizations.

Based on the market survey conducted, sales revenues of $572,750 are projected by the third year of operation as shown in Table 25. The proposed project appears viable as a break-even situation is achieved by the third year of operation.

Total capital requirements for the project would range between $540,000 and $570,000, which includes $370,000 for equipment and leasehold improvements while an additional $150,000 to $200,000 would be required for working capital.

F. SUMMARY

The opportunities for import substitution in the manufacturing sector are diverse and consist of the production of materials for the construction, fur, food, and communications industries. As shown in Table 26, the manufacturing opportunities described in the previous sections of this chapter would result in the displacement of approximately $5.9 million of products currently imported from southern Canada each year.

TABLE 26

IMPORT DISPLACEMENT POTENTIAL OF THE MANUFACTURING SECTOR IN THE N.W.T.

	Activity	Value of Imports That Could be Displaced
A.	Fur Industry	
-	Small-scale tannery	$ 84,000
-	Fur dressing plant	180,000
B.	Construction Materials	
-	Sheet metal manufacturing	1,050,000
-	Sawmills	1,300,000
-	Woodworking facility	700,000
C.	Food Processing	
-	Brewery pubs	1,100,000
D.	Communications	
-	Printing & Publishing	750,000
-	Video Production	573,000
	TOTAL	$ 5,887,000

Source: Don Ference & Associates Ltd.

VI. ENERGY

A description of opportunites for import substitution in the energy sector are described in the following sections:

A. INTRODUCTION

Fossil fuels have traditionally served the power requirements of the N.W.T. All regions within the Territories have relied particularly upon petroleum products both for space heating and for electrical power generation. The production and consumption of refined petroleum products in the N.W.T. is as follows:

PRODUCTION AND CONSUMPTION
OF REFINED PETROLEUM PRODUCTS
(000's m^3)

	1984	1985
Sales	502.5	516.5
Production	133.2	162.1
Imports	343.4	389.3

Source: N.W.T. Statistics Quarterly, Vol. 8, No. 1

As shown, imports of 343,400 m^3 in 1984 represented 68% of total sales of 502,500 m^3. In 1985, imports jumped to 75% of sales of 516,500 m^3, as 389,300 m^3 were imported from the south of Canada. While these figues have not been adjusted to account for changes in inventory, they do illustrate the heavy dependence of the N.W.T. on fuel imports.

A breakdown of petroleum product sales in the N.W.T. is presented in the following table:

SALES OF PETROLEUM PRODUCTS IN THE N.W.T.
(000's m^3)

	1984	1985
Aviation Gas	9.3	8.3
Motor Gas	49.5	46.9
Aviation Turbo Fuel	72.6	79.3
Kerosene Stove Fuel	54.6	54.5
Diesel Fuel Oil	235.6	230.2
Light Fuel Oil	56.6	53.8
Heavy Fuel Oil	20.3	21.6
Other	4.0	21.9
Total	502.3	516.5

Source: N.W.T. Statistics Quarterly, Vol. 8, No. 1

Major users of petroleum products include the government sectors, Northern Canada Power Commission, and the private sector. As shown above, the transportation sector is also responsible for a significant portion of consumption as aviation and motor gas accounted for 26% of total sales of petroleum products in 1985.

In 1984 and 1985, the N.W.T. generated 491,926 and 502,295 MWH of electricity, respectively. The major producers of electrical power include the Northern Canadian Power Commission and Alberta Power. Except in some areas of the Fort Smith region, electricity is supplied almost exclusively by diesel generators and thus is a by-product of the diesel fuel consumption shown in the above table.

B. IMPORT SUBSTITUTION OPPORTUNITIES

Although there exists substantial production of oil and gas in the N.W.T., the majority of petroleum products used in the N.W.T. are imported from southern Canada. This occurs because it is cheaper to distribute these products from

southern Canada. As a result, the import substitution opportunities in the energy sector appear to be limited to alternative energy sources that would displace conventional energy sources.

The alternative energy sources for the N.W.T. that would result in import substitution are described below:

1. Small-Scale Hydroelectric Stations

The majority of hydroelectric development studies conducted for the N.W.T. over the last 15 years have dealt with large-scale development. These studies indicated that large-scale hydroelectric development is not feasible due to excessive capital costs and low demand. However, in the last five years, several attempts have been made to assess the feasibility of small-scale hydro sites to meet the demand of N.W.T. communities. In 1985, Energy, Mines and Resources Canada commissioned a study of small hydroelectric generation stations near remote communities in the N.W.T. Of the communities studied, only the Coppermine project was considered potentially feasible. For the rest, a combination of the size of the load, the length of the transmission lines, the lack of head or fall in the river, and the size of the river were cited as prohibitive factors in the feasibility of operation. The study concluded that small-scale hydro generation can only in a few instances displace oil and wood fuel on a competitive basis. As a result, the import substitution potential from small-scale hydroelectric stations appears limited.

2. Wind

Wind powered turbines have been proposed as an alternative energy source in the N.W.T. While the populated areas of the Fort Smith region do not have sufficient wind power potential, other areas, particularly in the Eastern N.W.T., do. Many locations in the Baffin, Kitikmeot, Keewatin and Inuvik regions have been tentatively identified as potential wind sites.

Advantages of wind power include the provision of fairly constant annual loads and the ability of application at a local level. Constraints include the operation

of complicated equipment in cold climates, unknown capital costs, and the lack of site-specific wind data which is imperative for proper scheduling. Because the present state of wind power technology has yet to provide an inexpensive method of storing electricity, the major use of wind energy generation is to supplement a more reliable primary power system.

A pilot project based on wind power should be undertaken in the eastern Arctic in order to determine the cost of energy produced and the extent to which similar projects should be established in the N.W.T.

3. Peat

Substantial quantities of peat exist in the N.W.T., particularly in the MacKenzie corridor. Other peat concentrations are located west of Fort Good Hope and southwest of Great Bear Lake. The difficulty in utilizing peat in the N.W.T. is that most of it occurs in areas of permafrost. This makes the drainage, dehydration and harvesting of the peat inordinately expensive.

Harvested peat is marketable in sod form for industrial use for firing boilers and steam generators. It can also be formed into briquettes for home heating use. In a 1984 report prepared by Peat Consultants Canada Ltd. for Energy Mines and Resources, Hay River and Yellowknife were identified as possible locations for peat fuel pilot projects. A more detailed feasibility study is required to assess the economics of energy production based on peat.

4. Solar

Solar energy has been considered for the north, but initial studies have proved the source infeasible because of storage problems. The major problem is that power generation would occur in the summer whereas the demand would occur in the winter.

5. Geothermal

The only known geothermal sites in the N.W.T. are in the Inuvik and Fort Smith regions along the MacKenzie corridor. Several low temperature and mid-temperature (100° C) sites have been identified that would prove suitable for direct use such as space heating and aquaculture. However, it is not possible to transport the enery. As a result, the source of geothermal energy dictates that the projects be undertaken near the areas of Nahanni Bute and Fort Liard as they possess the greatest geothermal potential. This severely limits the use of geothermal energy as a source of energy.

6. Fuelwood

Fuelwood is a feasible space heating alternative for reducing dependence upon imported fuel oil in communities in the western N.W.T. At present, there is one boiler using fuelwood in Fort Smith that heats the town's water supply. Another boiler installation for a school in Fort Smith is planned. Other fuelwood conversion programs are currently being considered by Energy, Mines and Resources for the towns of Hay River and Rae-Edzo.

A fuelwood study of the MacKenzie region communities was funded by EDA. In addition, wood heating conversion studies have recently been undertaken for individual facilities in Rae-Edzo and Fort Smith. The results of these studies are summarized below:

a. Market Potential

According to the fuelwood study conducted for the MacKenzie region communities in 1985, the region presently consumes a total of 27,424 cords of wood annually. Given current space heating requirements, a full conversion to cord wood would result in an almost sevenfold increase in wood fuel demand to 183,452 cords. A partial conversion (i.e., half of heating requirements met by wood) would result in an increase in wood fuel demand to 91,726 cords.

TABLE 27

WOOD HARVESTING COSTS

Item	Scale of Operation 2,000 cords per year	Scale of Operation 4,000 cords per year
A. Harvesting		
1. Fuelwood Resource Depletion Charges @ $.05 m^3	$ 360.00	$ 720.00
2. Allowance for Winter Roads, Cutting Trails, @ $1,000/km	8,000.00	16,000.00
3. Felling	37,300.00	74,600.00
O & M Costs	3,400.00	6,800.00
4. Tote to Loading Point - 3/4 cord per man-hour	22,700.00	45,400.00
Sub-Total	$71,760.00	$143,520.00
Cost Per Cord	35.88	35.88
B. Whole Log Delivery		
Hauling & Delivery (8 cords/load)	$ 2.85	$ 2.85
Labour	8.50	8.50
Fuel	5.00	5.00
Depreciation	5.00	3.00
Sub-Total	$ 21.35	$ 19.35
C. Chip Fuel Delivery		
- Chipping at 6 cords/hr		
Labour operations	$ 2.33	$ 2.33
Fuel (10 litres/hr.)	1.10	1.10
Labour Maintenance	2.33	2.33
Depreciation and Repairs	3.00	2.00
- Hauling (6 cords/load)		
Labour ($34.50/load)	5.75	5.75
Fuel ($40.00/load)	6.66	6.66
Depreciation and Repairs	5.75	3.50
Sub-Total	$ 26.92	$ 23.67
D. Total Costs		
Harvest Operating Cost of Cordwood	$ 57.23	$ 55.23
Harvest Operating Cost of Chipped Wood	$ 62.80	$ 59.55

Source: Wood Heating Conversion Study for Rae Edzo, N.W.T.

b. Capital Costs

Equipment needs and capital costs differ according to site-specific factors, but generally fall into two major categories: boilers for commercial or community building use and furnaces or stoves for residential use. As an illustration, the Rae-Edzo conversion study indicated that the installation of modern airtight wood stove equipment in residential dwellings is estimated to cost $2,300 per house while the installation of forced air wood furnace equipment would cost $5,100 per house.

The MacKenzie region study stated that $11.5 million would be required to convert the building stock in the 28 major communities in the region to wood from fuel oil systems. This does not include the costs of infrastructure, including road construction and the maintenance, or the capital costs associated with fuel wood harvesting.

The total equipment and vehicle costs for a fuel wood harvesting operation are estimated to be about $106,100. The major capital cost consists of the trucks and a wood chipper to supply chips to boilers in commercial and institutional buildings. If fuelwood operators were established in each of the the 28 communities, the total capital investment required would be about $3.0 million to equip these operators with fuel wood harvesting equipment.

c. Economic Viability

As shown in Table 27, the estimated costs to harvest cordwood are $55.23 per cord and $59.55 per cord of chipped wood based on a 4,000 cord per year operation. Table 28 indicates the sales price that would have to be charged in order to allow for administration expenses well as provide a return on investment of 35% on the assets employed. The price that would have to be charged for cord wood

TABLE 28

FUELWOOD SALES PRICE

	Scale of Operation	
	2,000 cords	4,000 cords
A. Cord Wood		
- Operations cost of cordwood	$ 57.23	$ 55.23
- Markup on operations (20% of operations costs)	11.45	11.05
- Administration costs (1)	3.00	3.00
- Return on investment on assets employed at 35%	6.70	3.44
Sales Price Per Cord	$ 78.38	$ 72.72
B. Chip Wood		
- Operations cost of chip fuel	$ 62.80	$ 59.55
- Markup on operations (20% of operations costs	12.56	11.91
- Administration costs(1)	3.00	3.00
- Return on investment of assets employed at 35%	12.13	6.15
Sales Price Per Cord	$ 90.49	$ 80.61

NOTES:

(1) Administration costs of $3.00 per cord are arbitrarily assigned to allow for business operating costs such as order taking, bookkeeping, invoicing, some working capital financing costs, etc.

Source: Wood Heating Conversion Study for Rae Edzo, N.W.T.

would be $72.72 while the price for chip wood would be $80.61 per cord. These selling prices appear realistic as they are equal to the current selling prices of fuelwood in N.W.T. communities.

Based on these fuelwood prices, substantial savings on fuel costs would be achieved by fuel wood users. As an illustration, one cord of fuel wood can substitute 616.6 litres of fuel oil which costs about $247 based on a price of $.40 per litre. As a result, cord wood is only about one-third the price of fuel oil for an equivalent amount of energy.

Based on the Rae Edzo study, a typical residence would achieve savings on fuel costs of about $545 per year based on a fuel wood cost of $78.78 per cord. Based on an initial investment of $2,300 for a wood burning stove, the payback period would be 4.22 years. The amount of fuel wood required for a typical residence would be about 3 to 4 cords of wood per year.

A similar analysis of the economic viability of four wood boiler installations in commercial and institutionalized buildings using chip wood indicated that the annual savings in fuel costs range from $4,656 to $44,866 per year. The payback period ranges from 3.9 years to 18.5 years. Most of the applications, therefore, appear to be viable.

The total amount of fuel wood required in Rae-Edzo if all existing public housing units and all commercial/institutional/municipal buildings were converted is estimated to be about 2,500 cords. The total capital investment required would be about $1.7 million. The revenue generated for fuel wood sales would be about $1.65 million and approximately 63,000 man hours or an equivalent of 40 full-time jobs would be created.

The MacKenzie region study stated a full conversion to wood heat would result in an annual energy cost savings to the region of $17

million. Even if 25% of this were achieved, the value of imported energy displaced would be $4.25 million.

The viability of specific opportunities, however, is dependent upon the costs of conversion, access to fuelwood supplies and the volume of fuel used. Separate feasibility studies are required for each community before a conversion program is initiated. The major factors that need to be investigated are the proximity of fuel wood supplies, likely harvesting costs, and the capital costs of conversion.

d. Job Creation Potential

The MacKenzie region study stated that fuel wood conversion could stimulate 1,000 jobs annually. Initially, fuelwood would be harvested by individuals operating with a chain saw and truck, but eventually the harvesting process would become more mechanized as demand for wood increased. Some positions would require skills beyond the present capabilities of the labour force. Consequently, training would have to be provided to develop installation skills for retrofitting existing systems and outfitting new systems, to instruct municipal and fire inspection officials regarding the special safety and maintenance requirements of wood burning boiler and furnace systems, and to develop a supply of boiler operators.

e. Constraints to Future Development

Fuelwood creates more pollution and is less convenient to use than fossil fuels. The potential for cost savings may not be sufficient to induce conversion in many cases because the user may not be the beneficiary of the savings. Inducing conversion may require substantial effort in the areas of education, training, promotion and subsidization programs. Current government programs also do not provide an inducement for conversion; in fact, oil subsidization programs serve as a major constraint.

While a substantial supply of timber is available in the MacKenzie region, increased harvesting may require infrastructure enhancements to improve access to the resource, more and better inventory data, and silviculture research and development. A forest management plan that specifically identifies the resources available for fuel wood harvesting is required to prevent conflicts within the forest industry (e.g., sawmills) and with other renewable resource users.

f. Recommended Development Strategy

Substantial potential exists for developing the fuelwood sector. Cost savings in many instances are significant enough to recoup the costs of conversion in less than five years. Sufficient forestry resources are available to meet increased demand in the Inuvik and Fort Smith regions although access to fuelwood will prove to be a problem for some communities.

The sequence of steps required to develop a fuelwood industry are as follows:

1. Undertake a pilot project to convert one community in the N.W.T. to fuelwood.

   One pilot project should be funded first in order to demonstrate the viability of a fuelwood conversion program for an entire community. A potential location for the pilot project could be Rae-Edzo as it has already been examined and recommended for a conversion program. For the pilot project, assistance should be provided to undertake a program to convince current users of fuel oil to switch to wood. Therefore, a project manager should be hired on a contract basis over a period of two to three years to implement the conversion program. The functions that would be performed by the project manager are as follows:

- Contact all building managers and the N.W.T. Housing Corporation to convince them to convert to fuelwood.

- Ensure that inventory assessments are conducted and that adequate forest resources are available.

- Assist building conversions by supplying technical and economic data when necessary.

- Conduct a public awareness program.

- Monitor the success of the conversion program.

As part of the pilot project, assistance should also be provided to establish a fuelwood harvesting business in the community in which the pilot project is being undertaken.

2. If the pilot project is successful, provide assistance for feasibility studies of other community fuelwood conversion programs.

   These studies should determine the capital cost to convert to fuelwood as well as the likely costs of accessing and harvesting the fuelwood. Based on this information, it would then be possible to determine whether a fuelwood conversion program should be undertaken in the community.

3. Where warranted by the results of the feasibility studies, provide assistance to establish fuelwood harvesting businesses in other N.W.T. communities.

C. SUMMARY

The alternative energy source that has the most import substitution potential is fuelwood. Small-scale hydro and wind power generation may have some potential in the N.W.T. but need to be investigated further.

TABLE 29

NUMBER OF BUSINESS FIRMS IN THE N.W.T. IN 1986

Sector	Employment Size						
	0	1-4	5-9	10-19	20-49	Unknown	Total
Employment Agencies & Personnel Services				1			1
Computer Services		2		1			3
Security & Investigation Services		2	1		1		4
Accountants	2	10	1	1		2	16
Advertising Services		1	1		1		3
Architects	2	3	1		1		7
Engineering & Scientific Services	4	8	1	1	1	1	16
Lawyers & Notaries	3	9	4	1	2		19
Management Consultants	5	23	2	2			32
Miscellaneous	1	10	3	2	—	—	16
Total	17	68	14	9	6	3	117

Source: Statistics Canada, Business Register, end-year 1986

VII. BUSINESS SERVICES

This chapter contains a description of the market for business services in the N.W.T. and the opportunities to increase the market share of northern business service firms.

A. INTRODUCTION

Table 29 indicates the number and size of professional service firms in the N.W.T. As indicated, there are a total of 117 business service firms. The predominant types of professional services offered in the North include management consulting, legal, engineering and accounting.

1. Consulting Services

The value of the major consulting services purchased by the government and private sector organizations contacted was approximately $6.07 million. As shown in Table 30, the market share held by southern firms was 63.0%.

The major findings resulting from our survey of public and private sector organizations is as follows:

a. The main types of consulting services used by the government organizations contacted are management, personnel and computer consulting services.

b. On the other hand, the major types of consulting services used by the private compannies contacted are accounting and legal services.

c. The types of consulting services where southern firms have a major market share are as follows:

MARKET SHARE OF SOUTHERN FIRMS

Service	Market Share
Engineering consulting	83.5%
Management Consulting	74.6%
Accounting	100.0%

As indicated, none of the organizations contacted employed a northern accounting firm. This suggests that the primary markets for the 16 accounting firms in the N.W.T. are services to smaller businesses and individuals as well as financial and tax planning services.

d. The professional services where northern firms have a major market share are as follows:

MARKET SHARE OF NORTHERN FIRMS

Consulting Service	Market Share
Personnel	73.1%
Legal	53.3%
Computer	69.3%

e. Within the private sector, the primary and manufacturing sectors utilized northern firms to a minor extent. The service sector utilized northern firms more frequently while the trade sector made most of its purchases from northern firms.

2. Other Business Services

Table 5 indicates other business services purchased by the territorial and federal government. This table, however, includes the purchase of some goods as the existing government information systems do not differentiate between the goods

and services purchased. As a general rule, the two departments, Federal Department of Supply and Services and G.N.W.T. Department of Government Services, purchase the majority of goods used by other federal and territorial departments, respectively. The other government departments, therefore, purchase primarily services. We have used this general rule in attempting to estimate the amount of goods and services purchased by government departments.

As shown in Table 5, the total value of services purchased by the Federal and territorial governments is estimated to be approximately $116.8 million, which includes professional consulting services. As shown in Table 6, the private sector companies surveyed purchased a total of $11.0 million of business services, including professional services. As a result, total business services purchased by the organizations contacted was $127.8 million. Our major findings regarding the business services other than consulting services purchased by the public and private sector organizations contacted are provided below:

a. As shown below, the federal government purchases a much lower proportion of business services provided from northern firms as compared to the territorial government and organizations contacted:

PURCHASES OF BUSINESS SERVICES

Sector	Total Purchases ($000's)	% From Southern Firms
Federal Government	$ 51,804.4	80.0%
Territorial Government	64,954.5	19.6
Private Sector	11,000.0	33.1
Total	$127,758.9	45.2%

b. The business services where a large proportion was purchased from southern firms by the federal government are as follows:

VALUE OF BUSINESS SERVICES PURCHASED BY FEDERAL GOVERNMENT

Service	Total Purchases ($000's)	% from Southern Firms
Temporary Help	$ 140.0	100.0%
Construction	7,940.8	86.3
Fire fighting	1,337.1	100.0
Language	339.7	100.0
Real Estate and Rental	11,352.1	86.4
Transportation	21,335.3	95.0

Some of the services indicated above, however, represent import substitution opportunities for southern services including the provision of temporary help, construction and language interpretation services.

As a result, the federal government is an important target for local northern business service firms in order to increase their sales revenues.

c. The territorial government purchased only 17.6% of its services from southern firms. The major services purchased by the territorial government, other than consulting services, included building cleaning and maintenance, construction, advertising, operation of group homes, real estate and rental, and water sewer and garbage collection services.

d. The only services where the territorial government purchased a considerable volume from southern firms were photography and mapping, construction, repairs and maintenance, and the operation of group homes as shown below:

SOME BUSINESS SERVICES PURCHASED BY G.N.W.T.

Service	Total Purchases ($000's)	% from South
Group Homes	$ 305.7	55.8%
Photography and Mapping	2,553.2	24.0%
Construction Repair and Maintenance	3,803.4	17.2%

B. CONSTRAINTS

Based on the responses obtained from the organizations surveyed, the major constraints experienced by northern business service firms in increasing their market share are as follows:

1. Difficulty in attracting qualified personnel due to the following factors:

    a. The low importance the Native community attaches to non-Native educational institutions.

    With few high school graduates and even less with post-graduate training, the Native community disenfranchises itself from most professional service activities.

    b. The difficulty in attracting southern professionals.

    c. The need to compete with government for available labour.

    The government sector in the N.W.T. offers excellent salaries and benefits as well as long-term security which private businesses find difficult to compete with.

2. Larger purchasers such as government and major resource companies often have in-house professionals.

   Consequently, when these users do solicit outside professional services it is usually because they are demanding a degree of specialization normally beyond the scope of a northern firm's abilities.

3. Difficulty in meeting tender specifications and deadlines.

   Northern firms, being smaller on average than southern firms, have fewer resources to allocate to preparing proposals and promotional undertakings.

4. Difficulty in selling services to decision makers, both in the public and private sectors, who are new to the north and have established relationships with southern-based professional service firms.

   An example of this phenomenon might be a government official who has relocated from the south, has dealt at length with professional service firms from the south, and continues to utilize the services of the southern firm after having relocated. The average term of residency in the north for non-Natives is short and this can serve as a barrier to market penetration for northern firms.

5. Difficulty in accessing decision makers who are based in southern Canada.

   Frequently, the decision to purchase professional services for a northern operation is made in the south. Many resource companies and federal government departments have their headquarters elsewhere in Canada and it is difficult for northern firms to access these decision makers.

6. Poor information flow.

These does not exist a good central flow of information to inform business service firms of the requirements of public and private sector organizations. As a result, a considerable amount of time and expense must be incurred by northern firms to contact each organization and determine their requirements.

7. The wage cost of employees is high.

In addition to salaries, the additional costs that must be incurred to attract staff are the provision of relocation and housing allowances.

C. IMPORT SUBSTITUTION OPPORTUNITIES

Some of the specific import substitution opportunities in the business services sector that have been identified are as follows:

1. Accounting Services

In 1985, the town of Iqaluit had no local firm providing accounting or management consulting services. Yet, Iqaluit is the administrative and business centre for the Baffin region of the N.W.T. An EDA study conducted in 1985 concluded that the establishment of a local accounting firm in Iqaluit would be viable.

According to a survey of businesses that was conducted as part of the study, Ottawa was the source of 50% of the accounting services purchased, Yellowknife 20%, and southern Canada the remaining 30% of services purchased. The respondents ranked the following services in order of importance: accounting/auditing, tax planning, management consulting and financial planning.

The value of accounting services purchased by the 59 respondents to the survey is distributed as follows:

TABLE 30

VALUE OF MAJOR CONSULTING SERVICES PURCHASED
BY ORGANIZATIONS SURVEYED

Type of Consulting Services	Federal Government		G.N.W.T.		Private Companies		Total			% from South
	North	South	North	South	North	South	North	South	Total	Total
Engineering	$ 95.8	$363.5	$ 0.0	$ 0.0	$0.0	$ 122.0	$ 95.8	$ 485.5	$ 581.3	83.5%
Management	0.0	90.5	512.9	1,282.7	0.0	135.0	512.9	1,508.2	2,021.1	74.6
Personnel	475.5	0.0	62.7	197.6	0.0	0.0	538.2	197.6	735.8	26.9
Legal	4.7	0.0	340.7	40.0	0.0	263.0	345.4	303.0	648.4	46.7
Computer	0.0	0.0	521.0	203.5	0.0	38.0	521.0	241.5	762.5	31.7
Accounting	0.0	0.0	0.0	0.0	0.0	1,322.0	0.0	1,322.0	1,322.0	100.0
TOTAL	$576.0	$454.0	$1,437.30	$17,23.8	$0.0	$1,880.0	$2,013.3	$4,057.8	$6,071.1	66.8%

Source: Don Ference & Associates Limited.

YEARLY EXPENDITURES ON ACCOUNTING SERVICES

Annual Expenditure	% of Respondents
Less than $1,000	20%
$1,000 - 4,000	35
$4,000 - 6,000	5
$6,000 - 10,000	20
$10,000 - 20,000	10
More than $20,000	10
Total	100%

The respondents to the survey indicated a high need for a local accounting firm and a high level of willingness to utilize its services. The respondents also indicated a willingness to pay a premium for the services provided by a local firm. Clients expect the higher costs to be offset by improved accessibility and better customer service.

The study indicated that establishing a local accounting office in Iqaluit would be viable. The initial investment required was estimated to be about $170,000 for equipment, leasehold improvements and working capital.

The revenues were projected to increase from $204,700 in the first year to $295,000 in the third year of operation. Based on these revenue projections, the operation would break even by the third year of operation.

Since the completion of the Iqaluit feasibility study, two professional accounting firms active in other areas of the N.W.T. have recently located in Iqaluit. As a result, it is likely that there will exist a considerable displacement of services provided by southern firms in not only Iqaluit but the surrounding communities.

As shown in Table 30, the total value of accounting services provided by southern firms to the private companies contacted is $1.32 million. As a result, there still appears to exist considerable potential to increase the size and number of accounting firms in the N.W.T.

2. Employment and Personnel Agency

Several of the public and private organizations contacted indicated that a major constraint was the limited availability of skilled labour and expertise in the north. An employment and personnel agency can improve the access to an information and supply bank between the N.W.T. business sector and the source of available labour. Another service that could be provided by an employment agency is to assist private sector companies in accessing government training programs to offset their training and wage expenses. The provision of this service alone has resulted in the creation of a number of employment agencies in southern Canada.

3. Industrial Drycleaning

Some interest has been expressed in establishing a drycleaning and laundry service for commercial and industrial customers in the N.W.T. At this time, there is one operation in Yellowknife specializing in this market. However, it appears that the share of the local market can be increased in two ways. First, services currently provided by southern companies can be substituted. Some industrial and commercial users still utilize services in Alberta even though this entails additional transportation costs. Second, businesses that currently have in-house laundries could be sold on the advantage of contracting out their needs. The target markets would include hospitals, oil and gas companies and remote camps.

The required equipment costs between $250,000 and $300,000, including installation. Total capitalization would be approximately $400,000 to $500,000.

TABLE 31

IMPORT SUBSTITUTION POTENTIAL IN THE BUSINESS SERVICES SECTOR

Service	Total Value of Services Purchased	Current Purchases From Northern Firms		Incremental Revenues From 5% Increase In Market Share
		Value	% of Total	
Accounting	$ 1,322.0	272.0	20.6%	66.1
Employment Personnel	140.0	0.0	0.0	7.0
Construction	63,322.4	46,738.0	73.8	3,166.1
Fire Fighting	1,337.1	0.0	0.0	66.8
Language	344.5	4.8	1.4	17.2
Real Estate & Rental	12,012.7	2,166.4	18.0	600.6
Transportation	21,378.3	1,101.4	5.1	1,068.9
Engineering Consulting	581.3	117.8	20.2	29.1
Management Consulting	2,021.1	547.9	27.1	101.0
Total	$102,319.4	$50,948.3	49.8	5,122.8

Source: Don Ference & Associates Limited

4. Other Services

Some other services that are mainly being provided by southern firms but have import substitution potential are as follows:

- Engineering consulting
- Management consulting
- Construction services
- Fire fighting
- Language interpretation
- Real estate

More detailed investigation of these opportunities should be undertaken, however, in order to determine the actual market potential that could be obtained and the specific types of services that would have to be provided.

D. SUMMARY

The business services sector holds considerable import substitution potential. One major opportunity is to increase the market share of northern firms in the business services purchased by the Federal Government in northern Canada. Table 31 lists some specific business services that have been identified as having import substitution potential. If northern firms were able to achieve an increase in market share of only 5% for the organizations contacted during our study, the total revenues displaced from southern firms would be approximately $5.1 million per year.

TABLE 32

N.W.T. TRADE FIRMS
IN 1986

Sector	Employment Size							
	0	1-4	5-9	10-19	20-49	50-99	Unknown	Total
Wholesale								
Petroleum		4	4	1	2		1	12
Paper, Paper Products		1						1
Food		2	2	1				5
Apparel, Dry Goods	1							1
Furniture, Furnishings			1					1
Motor Vehicles		1						1
Electrical Machinery and Supplies	1							1
Machinery & Equipment		1	2				1	4
Lumber, Building Materials		1	1	3	2		1	8
Other		5	1		1		1	8
Total Wholesale	2	15	11	5	5		4	42
Retail								
Food	1	17	12	4	1	3	1	39
General	3	8	6	13	4		4	38
Tire, Batteries Accessories	1	1						2
Gas Station	2	1	3	1				7
Motor Dealers	1	1		2	3			7
Vehicle Repair	2	10	6	1			1	20
Shoe Stores				1				1
Men's Clothing			1					1
Women's Clothing		6						6
Clothing, Dry Goods	1	7	1	1				10
Hardware		2	1	1				4
Furniture & Appliance	1	11	5	1			1	19
Radio & T.V.	1	4						5
Drug Stores		1	1	3	2			7
Florists		2	1	1				4
Book & Stationery		2	2					4
Jewellery		2						2
Liquor		1	1	1			1	4
Retail	4	27	7	1	2		1	42
Total Retail	17	103	47	31	12	3	9	222

Source: Statistics Canada, Business Register, end-year 1986

VIII. TRADE AND CONSUMER SERVICES

This chapter provides a description of the import substitution opportunities in the trade and consumer services sectors of the N.W.T.

A. TRADE

1. Introduction

The trade sector in the N.W.T. presently consists of 42 wholesale and 222 retail firms as shown in Table 32. Between 1971 and 1981, the trade sector in the N.W.T. experienced greater employment growth than most other sectors. Wholesale trade employment grew at an annual rate of 11.9%, while the retail trade sector grew at a rate of 8.6%. The combined growth rate of 9% is almost double the total N.W.T. employment growth rate of 5.8%.

In 1985, however, trade employed only 12% of the total labour force in the N.W.T. In comparison, 18% of the labour force in other provinces in Canada was employed in the trade sector. As a result, there appears to exist further potential for growth in the trade sector.

2. Constraints

According to the organizations contacted, some of the major constraints of northern firms to increasing their current share of wholesale and retail trade are as follows:

a. Approximately 77% of respondents indicated that inability to guarantee a dependable supply of products was the single biggest constraint to increasing business with local suppliers.

b. The G.N.W.T. Northern Preference Policy is a major factor in assisting northern firms in obtaining a considerable proportion of G.N.W.T. purchases. However, the federal government does not have a northern preference policy.

According to the government representatives contacted, the other constraints to increasing northern firms' share of the federal government are as follows:

a. The location of the suppliers in relation to the final destination.

Most N.W.T. suppliers are resident in the larger centers while government users are dispersed across the Territories. Northern suppliers hold no transportation advantages over southern suppliers when servicing remote areas; in fact, the northern routes are often more costly than shipping directly from southern Canada.

b. Supply to remote communities is often on a once or twice per year basis.

The supplies are marshalled from a variety of points to the most accessible shipping point which is usually in the south. Northern suppliers do not have the storage, purchasing and transportation capabilities, or the access to basic supplies required to serve as the marshalling point.

c. The G.N.W.T. Northern Preference Policy encourages wholesalers to set up facilities in the N.W.T.

However, the duplication of costs, and higher transport, holding and operating costs in the north means that these wholesalers are at a substantial price disadvantage vis-a-vis southern suppliers. The price discrepancy is sufficient in most cases to warrant the selection of a southern supplier.

d. Most wholesalers in the N.W.T. do not have a service capability.

For this reason, end-users prefer to deal with southern suppliers who can provide after-sales service.

3. Import Substitution Opportunities

A description of some specific opportunities are provided below:

a. Micro-computer Sales, Service & Repair

The increasing trend towards the use of micro-computers has created a need for computer sales, service and repair facilities in the major centres in the N.W.T. At the present time, there exists only a few computer sales outlets in the N.W.T. Yet, the market for computer sales is large, as shown below:

PURCHASE OF OFFICE AND COMPUTER EQUIPMENT SUPPLIES AND SERVICES

Government Sector	Total Purchases	% From South
Federal		
- Equipment and supplies	$ 2,947.6	93.5%
- Services	-	-
G.N.W.T.		
- Equipment and supplies	6,883.3	38.8%
- Services	724.5	28.1%
Total	$ 10,555.4	53.4%

As indicated, only about one-half of the market for office and computer equipment, supplies and services is being captured by local firms. As a result, there still exists considerable potential to increase the current sales revenue obtained by northern firms.

b. Hardware, Lumber and Building Supplies

The G.N.W.T. organizations contacted purchased all of their requirements from northern suppliers while only 41.6% of the hardware and building supplies bought by the Federal Government organizations contacted purchased locally.

c. Electrical and Communication Equipment

There appears to exist potential for northern firms in the distribution of electrical and communications equipment. The total value of such equipment purchased by the territorial and federal government was $9.2 million. Northern firms were able to garner a considerable share (58.0%) of the purchases of this equipment by the territorial government but obtained only a 5.9% of the purchases of electrical and communication equipment by the federal government organizations contacted, as shown below:

ELECTRICAL AND COMMUNICATIONS EQUIPMENT

Government	Total Purchases	% from Northern Firms
Federal	$ 8,764.8	5.9%
G.N.W.T.	383.3	58.0%

TABLE 33

IMPORT SUBSTITUTION POTENTIAL IN THE WHOLESALE AND RETAIL TRADE SECTOR

Goods	Total Value Of Services Purchased ($000's)	Current Market Share Of Northern Firms	Incremental Revenues From 5% Increase in Market Share ($000's)
Office and Computer Equipment Supplies, and Services	$10,555.4	46.7%	527.8
Hardware and Building Supplies	2,633.3	51.0	131.7
Electrical and Communication Equipment	9,148.1	8.1	457.4
Small Equipment and Tools	9,147.1	15.0	457.3
Cleaning Equipment	1,358.9	33.4	67.9
Textile and Clothing	922.0	15.2	46.1
Metal Products	726.0	30.5	36.3
Total	$34,490.8	26.7%	1,724.5

Source: Don Ference & Associates Limited

d. Other Wholesale Opportunities

As shown below, some other goods for which northern firms have only a small market share are small equipment and tools, cleaning equipment, textile and clothing, and metal products.

MARKET SHARE OF NORTHERN FIRMS

Commodity	Total Purchase By Federal Government And G.N.W.T. ($000's)	Market Share Of Northern Firms In Purchase By: Fed. Govt.	G.N.W.T.
Small Equipment and Tools	$9,147.1	14.1%	25.7%
Cleaning Equip.	1,389.9	34.9%	33.0%
Textile and Clothing	922.0	3.6%	43.0%
Metal Products	726.0	3.6%	95.0%

As shown above, northern firms have been able to achieve a considerably larger share of purchases by G.N.W.T. organizations as compared to federal government organizations.

4. Summary

As shown in Table 33, northern firms have a market share of about 26.7% in the imported goods listed above with import substitution potential. If northern firms are able to increase their market share in these products by 5%, the incremental sales revenue achieved would be approximately $1.7 million.

However, more in-depth investigation is required for each of the opportunities identified in order to determine the specific market niches and the actual sales revenue that could be obtained.

TABLE 34

NUMBER OF SERVICE FIRMS BY NUMBER OF EMPLOYEES IN THE N.W.T. IN 1986

Sector	Employment Size									
	0	1-4	5-9	10-19	20-49	50-99	100-199	200-499	Unknown	Total
Amusement and Recreation										
Motion Picture					1					1
Motion Picture Production and Distribution	1	2			1					4
Bowling, Billiards				1						1
Golf, Country Clubs	1	2								3
Theatre, Other Entertainment	1	1							1	3
Miscellaneous	2	11	2		1				3	19
Total	5	16	2	1	3	0	0	0	4	31
Finance, Insurance and Real Estate	33	30	16	17	9	2			1	108
Education	5	12	5	4	4	1	2		2	35
Health and Welfare	3	34	17	6	3	2	1	1	5	72
Religious	5	24	1	2					2	34
Total	46	100	39	29	16	5	3	2	10	249
Personal										
Shoe Repair	1									1
Barber and Beauty Shops	2	9	1	1						13
Private Households	2	101	1						4	108
Laundries, Cleaners		4		1						5
Dry Cleaners		1	1							2
Miscellaneous	—	4	—	—	—	—	—	—	—	4
Total	5	119	3	2	0	0	0	0	4	133
Other	30	100	32	17	11	3	0	0	11	204
Total	86	335	76	49	30	8	3	1	29	617

Source: Statistics Canada, Business Register, end-year 1986.

B. CONSUMER SERVICES

1. Introduction

There are a total of 617 firms offering consumer services in the N.W.T. as shown in Table 34 on the following page. The service sector is one of the faster growing sectors of the N.W.T. economy. In 1971, the service sector accounted for 32% of the N.W.T. labour force. In 1986, however, it employed 42% of the labour force.

As shown in Table 35, personal expenditures on both goods and services in the N.W.T. grew at an annual compound rate of about 12% between 1977 and 1984. Even during the recessionary period of the early 1980s, growth in service expenditures was never below 6.9%. An analysis of the value of goods and services purchased in Yellowknife in 1982 is shown in Table 36. As indicated, total expenditures were approximately $103 million which is approximately one-quarter of total N.W.T. expenditures of $455.0 million on goods and service.

2. Constraints

One of the major constraints to the development of consumer services is the limited population in most communities in the N.W.T. Table 37 indicates the number of people required to support each of the major types of retail stores that are found in most urban centres. As indicated, very few communities in the N.W.T. have sufficient population to justify a wide range of retail stores. In order to overcome this constraint, it is necessary for stores to offer a wider range of goods and services. In this manner, it is possible to reduce the size of population necessary to justify a store.

3. Import Substitution Opportunities

Some specific import substitution opportunities in the consumer service sectors are as follows:

TABLE 35

PERSONAL EXPENDITURES ON GOODS AND SERVICES IN THE N.W.T.
($000)

Year	Goods ($000)	Growth (%)	Services ($000)	Growth (%)	Total
1977	129,364	-	77,145	-	206,509
1978	152,298	17.7%	89,612	16.2%	241,910
1979	160,680	5.5	100,426	12.1	261,106
1980	189,131	17.7	111,308	10.8	300,439
1981	222,148	17.5	129,885	16.7	352,033
1982	259,269	16.7	148,491	14.3	407,760
1983	259,303	0.0	157,687	6.2	416,990
1984	285,418	10.1	169,595	7.6	455,013
Average Annual Rate		12.2%		12.0%	

Source: G.N.W.T. Bureau of Statistics, Preliminary Data

a. Car Wash

A rule of thumb for assessing the market for a car wash is that a town should have a population of 15,000 in order to make a stand-alone operation feasible. In the N.W.T., this rule can be discounted if certain other conditions are taken into account. First, a car wash would have to cater to trucks as well as cars. There is a sizeable truck traffic in the N.W.T. and the inclusion of this segment of the market would be required for the operation to be feasible. Second, the car wash would have to be attached to another service establishment, such as a gas station or a hotel complex. The shared land and overhead base would reduce the initial investment and operating costs substantially.

b. Dental Services

There exist opportunities to establish additional dental clinics in the Arctic. In Rankin Inlet, the government dental clinic is being operated by the University of Manitoba's Northern Manitoba Health Unit, which provides dental services to the Keewatin Region. Dental services for Native people are provided on a no-cost basis through Health & Welfare Canada as part of the Government's commitment to Native people in Canada. The Federal Government is in the process of transferring authority for health care to the G.N.W.T. The G.N.W.T. has indicated its interest in privatizing dental care as shown in the establishment of a private clinic in Iqaluit in January, 1987. As a result, there exists an opportunity to replace the dental services currently being provided by the University of Manitoba.

c. Incubator Mall

The subject of incubator malls has been a topic of some discussion in the N.W.T. over the last few years. The high cost of establishing new businesses combined with insufficient office and retail space in many

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TABLE 36

SUMMARY OF FAMILY EXPENDITURES IN YELLOWKNIFE IN 1982

Item	Average per Family	Total
Food - Store	$ 4,570	$ 14,716,000
Food - Restaurant	1,278	4,116,000
Food - Other	31	101,000
Shelter	6,535	21,042,000
Household Operations	2,186	7,038,000
Household Furniture	477	1,535,000
Household Textiles	199	640,000
Art & Antiques	295	949,000
Household Equipment	835	2,688,000
Other Household Furnishings	56	180,000
Clothing - general	208	670,000
Women's Wear	1,387	4,464,000
Men's Wear	945	3,044,000
Girl's Wear	182	587,000
Boy's Wear	133	426,000
Dry Cleaning/Laundry	159	511,000
Public Transportation	1,162	3,742,000
Automobile	3,497	11,261,000
Health Care - General	340	1,093,000
Eye Care	116	374,000
Dental Care	210	674,000
Personal Care Products	504	1,622,000
Personal Care Services	218	702,000
Recreation	2,839	9,140,000
Photographic Goods	300	966,000
Printed Matter	312	1,005,000
Education	177	569,000
Tobacco & Alcohol	1,564	5,034,000
Miscellaneous	1,241	3,996,000
	$31,956	$102,885,000

Source: Statistics Canada, Family Expenditure in Canada, 1982

communities has given impetus to the concept of establishing a low-end central office/retail complex. The mall would serve the purpose of "incubating" new services and retail businesses which might not otherwise have formed.

The potential tenants of the incubator mall would be young, developing businesses which requires low overhead costs initially. The incubator mall allows fledgling services to minimize the fixed cost component of operations and in the process lower the point at which they can break even. New markets and products can therefore be developed and tested at less risk. The lower risk should prompt a wider range of potential entrepreneurs to start businesses. Once the tenant achieves a level of growth that requires larger or more developed premises, a new business would step in to occupy the vacated space.

The G.N.W.T. Department of Economic Development has estimated that an investment of between $500,000 and $750,000 is required for a mall in Iqaluit. Detailed market research is required to determine if there exists sufficient potential to proceed with such projects.

d. Maid Services

Many areas of the N.W.T. are underserviced with respect to specialized consumer services. As an example, household maid cleaning services could be established in populated centres in the N.W.T. This market is untapped. However, with above average income in the north, a lack of competition, and the large number of two income households, there is opportunity to exploit this latent demand.

In addition, the investment capital is small and restricted to cleaning equipment and supplies. The service is highly labour-intensive and the capacity of the firm can be easily controlled through the use of part-time and seasonal unskilled labour. The major constraint would be to find labourers willing to undertake this type of activity.

TABLE 37

NUMBER OF INHABITANTS TO SUPPORT STORE

Food Beverage and Drug Stores	Required Population
Food Stores	
Supermarket and Grocery Stores	1,392
Bakery Product Stores	1,964
Dairy Product Stores	143,000
Meat Markets	11,004
Government Liquor Stores	11,004
Pharmacies	5,302
Apparel and Accessories	
Shoe Stores	7,348
Men's Clothing	10,648
Women's Clothing	4,713
Fabric and Yarn	17,557
Home Furnishings and Appliance	
Household Furniture	8,127
Household Furnishings	5,373
Appliances, Radio, Television	5,145
Automotive	
Auto Dealers	4,683
Auto Parts and Accessories	5,609
Gasoline Service Stations	2,413
Motor Vehicle Repair	1,840
General Merchandise	
Department Stores	21,904
General Stores	3,703
Amusement and Recreation	
Motion Picture Theatres	20,720
Billiard Parlors	40,350
Bowling Alleys	54,761
Personal and Household	
Barber and Beauty Shops	2,119
Laundries and Cleaners	5,989
Funeral Services	30,263
Accomodation Services	
Hotels, Motels and Tourist Cabins	2,604
Licenced Restaurants	2,060
Unlicenced Retaurants	2,413
Other	
Book and Stationery Stores	15,436
Florist, Lawn and Garden Centres	8,333
Hardware, Paint, Glass, Wallpaper	3,685
Sporting Goods and Bicycle Shops	8,745
Musical Instruments, Record Stores	17,692
Jewelry Stores	7,849
Camera and Photographic Supplies	24,731
Toy, Hobby, Novelty and Souvenir	5,386
Pet Stores	67,647

Source: Alberta Bureau of Statistics

4. Summary

Most of the organizations contacted did not list any consumer services that could displace imports. As a result, this study did not include an in-depth investigation of this area. We feel, however, that this sector has import substitution potential and that a more detailed investigation is required.

IX. CONCLUSIONS AND RECOMMENDATIONS

This chapter provides our general recommendations regarding the actions that can be taken by government to foster import substitution. In addition, summaries of the strategies required for the realization of the import substitution opportunities identified in each sector are provided.

A. GENERAL RECOMMENDATIONS

The major constraints to greater import substitution are a shortage of entrepreneurs, availability of capital, limited flow of information, high operating cost of northern firms and a shortage of skilled labourers. The steps required by government to alleviate these constraints and to foster greater import substitution are as follows:

1. Improving the flow of information on business opportunities by:

    a. Establishing an annual "reverse trade show".

        Reverse trade shows are similar to regular trade shows, except that it is the purchaser rather than the seller that sets up the booth, and the products displayed are those that are purchased rather than sold by the exhibitor.

        A reverse trade show in the N.W.T. would consist of inviting the major purchasers in the N.W.T. including G.N.W.T. Government Services, Supply and Services Canada, the resource companies, wholesalers, distributors and retailers of food products and general merchandise as exhibitors. The exhibitors would prepare a list of the volume and value of goods purchased that could feasibly be obtained from local producers and suppliers in the N.W.T. They would also provide samples and their expectations with respect to product specifications, packaging and supply criteria.

b. Augmenting the existing business directory with a referral system which could, upon request, refer potential buyers to local suppliers.

To do so, a data bank should be established that contains detailed information on potential suppliers in each area. The data bank would contain a detailed listing of the products and services provided by northern firms, names of key contacts, addresses and phone numbers.

c. Preparing a catalogue detailing available northern products.

d. Encouraging the direct exchange of information between buyers and sellers through sectoral specific symposiums and conferences.

As an illustration, the recent Northern Food Conference was successful in bringing a number of buyers and sellers together.

2. Undertake a "Buy North" advertising campaign to promote the purchase of locally produced goods.

The advertising campaign should consist of T.V., radio, and newspaper advertisements as well as the use of a N.W.T. logos on local products.

3. Increase the proportion of local goods and services purchased by the Federal Government.

One method would be to lobby the federal government to establish a Northern Preference Policy. Other methods include a greater effort by local federal government purchasing agents to assist local suppliers. Some steps that should be considered include the following:

a. Distribution of detailed lists of the goods and services purchased by the federal government to local firms.

b. Provision of longer lead-times to enable local firms to prepare tender bids.

c. Divide purchase requirements into small portions or extend completion times to enable northern firms to be able to handle the project.

4. Increase the supply of entrepreneurs by:

a. Distributing lists of business opportunities in the N.W.T. to Chambers of Commerce and similar organizations in southern Canada. As a result, entrepreneurs in southern Canada may be attracted by the high rates of return and growth potential of the N.W.T. economy.

b. Easing conflict of interest guidelines to allow more government employees to establish businesses.

Because the government is such a dominant employer in the North, this step is essential in order to free up entrepreneurial talent currently restricted by conflict of interest guidelines.

c. Increasing the utilization of successful entrepreneurs in the N.W.T.

Successful entrepreneurs should not be penalized but instead have equal access to existing government grant programs. In some cases, successful entrepreneurs have been refused grants due to "lack of financial need". A policy of supporting the winners rather than the losers will result in a higher success rate for the projects undertaken.

B. DETAILED SECTORAL STRATEGIES

The specific strategies required to develop the import substitution opportunities in each sector are provided below:

1. Food

Country Foods

a. Provide support for a test country foods processing plant in the Inuvik region that satisfies the meat inspection requirements of Agriculture Canada. The Inuvik region is the preferred location for the first country foods processing plant due to the proximity of supply of caribou, muskox and reindeer.

b. Make arrangements with Agriculture Canada to undertake the regular inspection of the meat slaughtered in the newly constructed country food processing plant.

c. Initiate the distribution of country foods through the existing grocery distribution system in the N.W.T.

d. Provide support for a major promotion program to increase the awareness and consumption of country foods in N.W.T.

The government should encourage food retailers and restaurants to carry northern foods. A "Buy North" campaign that focuses upon food preparation methods and nutritional benefits should also be undertaken and directed at the consumer. To aid in developing consistent product quality, the government should provide standardized training in product handling, butchering, inspection and packaging.

e. If there exists sufficient market potential and the test project in the Inuvik region appears viable, support should be provided to establish

additional country food processing plants in the N.W.T. We feel that a maximum of two or three meat processing plants would be required. In addition, these other plants should not proceed until the first plant has developed a market and demonstrated its viability.

Small-scale Agriculture

f. Government support should be provided to establish hog operations in the Fort Smith region.

g. In order for hog production in the N.W.T. to expand, government support and assistance is required to establish proper animal slaughtering facilities.

h. Regular meat and milk inspection services will also have to be provided in order to ensure that the finished product satisfies the inspection requirements of Agriculture Canada.

i. High priority should be placed on assessing the viability of and establishing poultry meat operations in the N.W.T.

j. Due to the lack of sufficient market potential, government support should not be provided to establish a second egg production facility in the N.W.T.

k. High priority should be given to establish additional market gardens in the Fort Smith region.

To do so, government support is required in the form of the promotion of the concept and the provision of start-up capital.

l. There exists sufficient market potential to expand the existing dairy operation in Yellowknife and establish a second dairy operation in the Fort Smith region.

m. A detailed feasibility study should be conducted of a waste heat greenhouse in Iqaluit. If the study results are positive, a full-scale test facility should be established as a pilot project.

n. Establish a Task Force on Northern Foods in order to prepare and implement a comprehensive development strategy for the northern food industry.

The task force should be comprised of senior officials of the Department of Economic Development and Tourism, Department of Renewable Resources, representatives from the private sector such as major grocery wholesalers and retailers in the N.W.T. and major country foods producers such as the IGC.

2. Manufacturing

Fur Goods

a. Support should be provided for the establishment of a small-scale tannery in the Fort Smith region as a test project.

b. A study should also be undertaken to investigate the market demand and feasibility of establishing a tannery in the Inuvik region that would be based on muskox and caribou which would be killed for the production of qiviut and country foods. If the study results are positive, assistance should also be provided to construct a tannery in the Inuvik region.

c. Assistance should be provided to set up a fur dressing plant in the N.W.T. as a test project. The preferred location is the Fort Smith or Inuvik region because the majority of furs are harvested in these regions.

d. Undertake a feasibility study of manufacturing accessory fur products such as mitts, hats and sweaters in a cottage craft environment.

Construction Materials

e. Provide support for the expansion of sheet metal manufacturing in the N.W.T.

f. Investigate the feasibility of expanding sheet metal operations to include the production of metal siding and roofing.

g. Conduct an in-depth feasibility study to determine if a major sawmill in the Liard Valley can be viable.

h. If the study results are positive, provide assistance for the establishment of a major sawmill in the Liard Valley.

i. Examine the feasibility of constructing prefabricated house components in the N.W.T.

j. Provide support for the establishment of a woodworking facility in the N.W.T.

Food Processing

k. Investigate the feasibility of establishing brewery pubs in the major communities in the N.W.T.

Communications

l. Conduct a more detailed investigation of the feasibility of expanding the printing and publishing industry in the N.W.T.

m. Provide assistance for the establishment of a video production company specializing in the production of e tion and training videos.

3. Energy

a. Undertake a pilot project to convert one entire community in the N.W.T. to fuelwood.

b. If the pilot project is successful, provide assistance for feasibility studies of community fuelwood conversion programs and the establishment of fuelwood harvesting operations in individual communities.

c. Undertake a pilot project based on wind power in the eastern Arctic in order to determine the cost of energy produced and the extent to which similar projects should be established in the N.W.T.

4. Business Services

a. Conduct a more detailed investigation of the following opportunities to determine the specific types of services that would have to be provided to displace services currently provided by southern firms:

- Employment and personnel agencies
- Construction services
- Industrial drycleaning
- Language interpretation
- Real estate
- Fire fighting

5. Trade and Consumer Services

a. Conduct a more detailed investigation of the following specific import substitution opportunities in the trade and consumer services sector:

- Micro-computer sales, service and repair
- Electrical and communications equipment
- Cleaning equipment

TABLE 38

SUMMARY OF IMPORT SUBSTITUTION POTENTIAL
OF OPPORTUNITIES IDENTIFIED
($000's)

Sector	Value of Imports Displaced
Food	$ 5,588.0
Manufacturing	5,737.0
Energy	4,250.0
Business Services	5,122.8
Trade	1,724.5
Total	$22,422.3

- Textile and clothing
- Metal products

C. IMPORT SUBSTITUTION POTENTIAL

A summary of the import substitution potential of the opportunities identified in this report is provided in Table 38. As indicated, the value of imports that would be displaced is estimated to be approximately $22 million per year. As a result, the replacement of imports appears to hold some potential for further economic growth in the N.W.T.

APPENDIX I

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APPENDIX II

LIST OF ORGANIZATIONS CONTACTED

LIST OF ORGANIZATIONS - Continued

Government Contacts

G.N.W.T.

Department of Culture and Communications, Yellowknife, N.W.T.
Department of Economic Development and Tourism, Yellowknife, Iqaluit, N.W.T.
Department of Education, Yellowknife, N.W.T.
Department of Finance, Yellowknife, N.W.T.
Department of Government Services, Yelloknife, N.W.T.
Department of Health, Yellowknife, N.W.T.
Department of Local Government, Yellowknife, N.W.T.
Department of Justice, Yellowknife, N.W.T.
Department of Public Works, Yellowknife, N.W.T.
Department of Renewable Resources, Yellowknife, Inuvik, N.W.T.
Department of Social Services, Yellowknife, N.W.T.
WCB, Yellowknife, N.W.T.

Municipal

Town of Iqaluit, N.W.T.
Town of Fort Smith, N.W.T.
Town of Hay River, N.W.T.
Town of Inuvik, N.W.T.
Hamlet of Norman Wells, N.W.T.
City of Yelloknife, N.W.T.

Federal

Canada Mortage and Housing, Yellowknife, N.W.T.
Canada Post, Edmonton, Alberta
Department of Communication, Winnipeg, Manitoba
Department of Defence, Edmonton, Alberta
D.R.I.E., Saskatoon, Saskatchewan
Employment and Immigration, Yellowknife, N.W.T.
Energy, Mines and Resources, Ottawa, Ontario
Environment, Edmonton, Alberta

LIST OF ORGANIZATIONS - Continued

Federal - Continued

Fisheries and Oceans, Yellowknife, N.W.T.
Health and Welfare, Edmonton, Alberta
Department of Indian and Northern Affairs, Yellowknife, N.W.T.
Department of Justice, Ottawa, Ontario
Public Service Commission, Ottawa, Ontario
Department of Public Works, Edmonton, Alberta
RCMP, Yellowknife, N.W.T.
Secretary of State, Edmonton, Alberta
Department of Supply and Services, Edmonton and Calgary, Alberta and Vancouver, B.C.
Department of Transport, Edmonton, Alberta

Other Government

City of Regina, Saskatchewan
City of Calgary, Alberta
City of Vancouver, B.C.
Kativik Regional Government, Kangirsuk, P.Q.
Canadian Forestry Service, Edmonton, Alberta
Better-Buy Victoria, Victoria, B.C.

Professional Service Firms

Outcrop Ltd., Yellowknife, N.W.T.
MacKay and Partners, Yellowknife, N.W.T.
Boyd and Company, Yellowknife, N.W.T.
Cascade Graphics, Fort Smith, N.W.T.
Hinchey, Wowk, Williams, Avery and Company, Yellowknife, N.W.T.
Ferguson, Simek, Clark, Yellowknife, N.W.T.
Thomson Underwood Mclellan Surveys Ltd., Yellowknife, N.W.T.
Cooper Johnson Wilson Hardy & Fournier, Yellowknife, N.W.T
Boreal Ecology Services Ltd., Yellowknife, N.W.T.
Lutra Associates Ltd., Yellowknife, N.W.T.
Eric Henderson Enterprises Ltd. Yellowknife, N.W.T.

LIST OF ORGANIZATIONS - Continued

Professional Service Firms - Continued

Stanley Associates Engineering Ltd., Yellowknife, N.W.T.
Rangifer Ltd., Yellowknife, N.W.T.

General Service

Baffin Building Systems, Iqaluit, N.W.T.
Fred Ross and Associates Ltd., Yellowknife, N.W.T.
Tower Arctic Ltd., Iqaluit, N.W.T.
Stan Dean and Sons Ltd., Hay River, N.W.T.
J & R Mechanical Ltd., Yellowknife, N.W.T.
JSL Mechancial Installations, Yellowknife, N.W.T.
Canarctic Graphic Ltd., Yellowknife, N.W.T.
City Cab Ltd., Yellowknife, N.W.T.
News/North, Yellowknife, N.W.T.
Ptarmigan Airways, Yellowknife, N.W.T.
Northern Transportation Ltd., Edmonton, Alberta
Norman Wells Transportation, Norman Wells, N.W.T.
Points North Transportation Inc., Inuvik, N.W.T.
CBC, Iqaluit, N.W.T.
NCPC, Edmonton, Alberta
Buffalo Airways, Fort Simpson, N.W.T.
Canoal Welding, Norman Wells, N.W.T.

Trade

I.G.A., Yellowknife, N.W.T.
Godwin's Super A Foods, Hay River, N.W.T.
Toonoonik-Sahoonik Co-op, Pond Inlet, N.W.T.
Prospector Ford Mercury Sales, Yellowknife, N.W.T.
Yellowknife Motors, Yellowknife, N.W.T.
Norm's Building Supply, Inuvik, N.W.T.
Igloolik Co-op Ltd., Igloolik, N.W.T.
Top Electric Ltd., Yellowknife, N.W.T.
Eskimo Inn, Inuvik, N.W.T.

LIST OF ORGANIZATIONS - Continued

Trade - Continued

Explorer Hotel, Yellowknife, N.W.T.
Frobisher Inn, Iqaluit, N.W.T.
MacKenzie Hotel, Inuvik, N.W.T.
The Yellowknife Inn, Yellowknife, N.W.T.
Northmount Camp Service Ltd., Vancouver, B.C.
Johnson's Building Supplies, Yellowknife, N.W.T.
Kerridge Holdings, Hay River, N.W.T.

Mining, Oil and Gas

Cominco, Pine Point, N.W.T.
Giant Yellowknife Mines Ltd., Yellowknife, N.W.T.
Echo Bay Mines Ltd., Lupin, N.W.T.
Computalog Gearhart Ltd., Norman Wells, N.W.T.
Connors Drilling, Yellowknife, N.W.T.

Manufacturing

Pangnirtung Co-op, Pangnirtung, N.W.T.
Patterson Sawmill, Hay River, N.W.T.
Slave River Saw Mill, Fort Resolution, N.W.T.
Northern Arc Shipbuilders Ltd., Hay River, N.W.T.
Fort Mcpherson Canvas, Fort Mcpherson, N.W.T.
Inuvik Parka, Inuvik, N.W.T.
Arctic Co-op, Winnipeg, Manitoba
Western Baffin Co-op, Cape Dorset, N.W.T.
Territorial Sheet Metal, Yellowknife, N.W.T.

Agriculture

Territorial Farmers Association, Hay River, N.W.T.
Mr. Mike MacEachern, Fort Smith, N.W.T.
Arctic Ventures Ltd., Iqaluit, N.W.T.
Kals Country Foods, Rankin Inlet, N.W.T.
Alaska Department of Fish and Game, Juneau, Alaska
Ulu Foods, Inuvik, N.W.T.

LIST OF ORGANIZATIONS - Continued

Agriculture

Canadian Reindeer Ltd., Tuktoyaktuk, N.W.T.
Ikalukputiak Co-op, Cambridge Bay, N.W.T
Mr. David Alagalak, Eskimo Point, N.W.T.
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Ms. Doris Eggers, Winnipeg, Manitoba
Mr. Maarten Ingen-Housz, Edmonton, Alberta

Chambers of Commerce

Yellowknife Chamber of Commerce, Yellowknife, N.W.T.
Inuvik Chamber of Commerce, Inuvik, N.W.T.

Miscellaneous

Tessler Bros. Vancouver, B.C.
Western Car Wash Services, Vancouver, B.C.
Cask Brewing Ltd., Vancouver, B.C.
Nunasi Corporation, Ottawa, Ontario